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ABSTRACT

This study determined the perceptions of 38 state Teachers of the Year (1988) had about how school facilities affected their ability to function as professionals. Data from a 105-item questionnaire revealed that, except for space utilization, the teachers were satisfied with all the physical environmental aspects of their school's instructional areas. They were also satisfied with noninstructional features except for telephones for teacher use; teacher to teacher conference areas; teacher professional libraries; and planning, lounge, and dining areas. Statistically significant differences in perception were found by gender, teaching level, and years of experience. The teachers ranked classroom furnishings, equipment, and ambient features as most important environmental features. They were least pleased with space utilization; acoustics; thermal conditions; equipment; and areas for planning, conferencing, and relaxation in their schools. The respondents also suggested features from their present facilities and features to add when planning new schools. Appendices provide the environmental questionnaire and copies of several study correspondence. (Contains 77 references.) (GR)

SCHOOL FACILITIES: THE RELATIONSHIP OF THE PHYSICAL ENVIRONMENT TO TEACHER PROFESSIONALISM

A Dissertation

by

BETTY LIGHTFOOT OVERBAUGH

Submitted to the Office of Graduate Studies of
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May 1990

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ABSTRACT

School Facilities: The Relationship of the Physical Environment to Teacher Professionalism. (May 1990)

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Education reform research shows the physical environment affects teachers in their performance as professionals. Research by the Interface Task Force specifically has recognized the enhancement of the ability of teachers to function as professionals as one of six areas in which an educational facility impacts learning. Educational systems throughout the nation face the enormous cost of replacing or renovating educational facilities. They must invest in facilities which build teacher self-esteem and permit teachers to function to the best of their professional abilities.

The purpose of this study was to determine the perceptions State Teachers of the Year (1988) had about how school facilities affected their ability to function as professionals. The study revealed that, except for space utilization, the teachers were satisfied with all the physical environmental aspects of their schools' instructional areas. They were also satisfied with noninstructional features except for telephones for teacher use; teacher to teacher conference areas; teacher professional libraries; and planning, lounge, and dining areas. Statistically significant differences in

perceptions were found by gender, teaching level, and years of experience.

The teachers ranked classroom furnishings, classroom equipment, and ambient features as most important environmental features. They were least pleased with space utilization, acoustics, thermal conditions, equipment, and areas for planning, conferencing, and relaxation in their schools.

The respondents also suggested features from their present facilities and features to add when planning new facilities. This information will aid educational facility planners to meet the professional needs of teachers.

Further research could examine the responses of secondary male and female teachers as compared to elementary male and female teachers and of teachers in open space classrooms as compared to self-contained classrooms.

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Dr. Tom V. Savage, formerly of Texas A&M and a previous committee member, was most helpful with research suggestions. Dr. Carol Anderson and Dr. Rodney Hill were invaluable with their suggestions during the entire project, but especially during the development of the research instrument.

Appreciation is extended to the Texas State Teachers of the Year (1988) who served on the pilot study, and especially to the national State Teachers of the Year (1988) who gave so generously of their time.

Last, but not least, appreciation is given to the members of both the Texas A&M and the National Task Force of the Interface Project whose work served not only as a guiding light but also as an inspiration.

DEDICATION

To my parents, Margaret D and Guy Donald Lightfoot, Jr., who started me down the road to become an educator; to my husband, Samuel Berrian Overbaugh, who encouraged my continuous journey down that path to this pinnacle; and to my daughters, Elizabeth, Margaret, and Ruth, who were always ready with loving help and encouragement.

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CHAPTER I

INTRODUCTION

Following the upsurge in the public as well as state and federal support of education in the 60's came the downsurge in the 70's. In some ways the educational system became the scapegoat of all the wrongs to be found in our society. Great emphasis was placed on what was being taught, and the school was asked to take on more and more responsibility. American schools were compared to schools across the world--the Russian, the Japanese--and found to be lacking. Public opinion seemed to be that the schools were not doing their jobs. Commonly heard was the statement, "Those who can, do; those who can't, teach." In the early 80's publications such as In Search of Excellence (1982) and A Nation At Risk (1983) pointed to the need for reform in education, and once again the public as a whole showed a renewed interest in education. At present, reforms are underway to make schools more effective. Orderly climate, high expectations, and strong leadership have been identified as indicators of effective schools (Demmon-Berger, 1986).

The importance of leadership cannot be underestimated in setting an open school climate where morale and motivation are high for both students and teachers. The findings of Abraham Maslow (1954) and of Frederick Herzberg (1959) which address

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The style and format of this dissertation are patterned after the Journal of Educational Research.

motivational factors have greatly influenced educational research and practice (Hoyle, English, & Steffy, 1985). Owens (1987) stated that while job security, benefits, and salary are certainly important to teachers, they actually do little to motivate. A greater motivational factor for teachers is to achieve feelings of professional respect, competence, and self-worth; teachers feel the need to be recognized as "people of achievement, professionals who are influential in their workplaces, growing persons with opportunities ahead to develop even greater competence and a sense of accomplishment" (Owens, 1987, p. 104).

Recent work of The Interface Task Force at Texas A&M University (The Interface Project, 1987) also identified the professional (self-esteem) needs of the teacher. In addressing the effective school movement, Hawkins (1987) stated that the interface of the facility and student learning has too infrequently been considered. Hawkins established an interdisciplinary group of Texas A&M professors to identify relevant learning theory which might be affected by the school building. Specific building features with a potential for affecting learning were then identified by a National Task Force comprised of architects, facility planners, and public school administrators. The Interface Task Force recognized six areas in which a facility impacts learning: in serving as an integral part of the community, in adapting to users' needs, in aiding communication, in creating a behavioral setting, in addressing individual learning styles, and in

enhancing the opportunity for the teacher to function as a professional. The physical aspects addressed by the Task Force such as having a personal office space and having access to a telephone become important self-esteem concepts while also aiding the teacher to perform professionally. The Task Force therein acknowledged the importance of further research in the relationship of the facility and the professional teacher.

Allowing teachers to function as professionals has become a critical issue. Recent reforms in education have been based on much criticism of the preparation and the abilities of persons in the teaching profession. While reforms were and are needed, much pressure has been placed upon the teacher, e.g., testing the proficiency of teachers of long-standing service and increased hours of in-service training and academic preparation. As a result, many teachers would not choose to become teachers if again given the choice. Others are taking jobs outside of education or are retiring early ("Study: Self-Esteem," 1987). William Banach stated ". . .criticism bruises the spirit and erodes motivation. . .we can never have students with high self-esteem unless we have teachers with high self-esteem" ("Study: Self-Esteem," 1987). Loss of self-esteem occurs when the teacher is not accorded the respect and dignity due a professional. Thus, education's biggest internal challenge may be to develop the self-esteem of teachers ("Study: Self-Esteem," 1987).

In the fall of 1987 one fourth of the ten thousand certified teachers in the Houston Independent School district expressed concern over unprofessional treatment. One teacher gave an example of a campus where office personnel refused to relay telephone messages to teachers unless the call was an emergency. Other concerns in this same report were a lack of security, low campus morale, burdensome paperwork, and low salaries (Paasch, 1988).

The location of the school itself becomes an important aspect in teacher professionalism and student learning. In a school whose outside wall was located twenty feet from a roadway, noise levels were measured. Those classrooms adjacent to the road were compared with those away from the street. Findings showed "Traffic noises resulted in negative influences on characteristics of teachers considered essential for effective instruction" (Kyzar, 1983, p. 13). The affected teachers were prevented in performing their duties in the professional manner they desired due to the location of the building. For example, they were forced to eliminate or alter their instruction, were less flexible in the management of their class, had difficulty in covering the subject matter, and experienced more difficulty in classroom management than those on the off street side (Kyzar, 1983).

Still another study showed a different way in which the facility impacts the professional performance of the teacher. This study found that teacher access to laboratory facilities after school hours tends to increase the amount of student

time spent in the laboratory in the usual time allowance for laboratory exercises (Englelhardt, 1967).

Of increasing importance are studies which have been and are being done on the learning environment: color, air quality, and lighting among others. Types of lighting and choices of color are being monitored in recent research to learn what impact they many have on student learning and, thereby, aid school facility designers and educators to design classrooms in which the teacher may function in a professional manner (Hathaway, 1987).

Statement of the Problem

As millions of dollars are poured into educational facilities each year either in the form of new facilities or the remodeling of facilities, the significance of the physical environment as a financial investment as well as an educational investment is evident. At a recent Council of Educational Facility Planners International (CEFPI) workshop held in Dallas, Texas, Tony Wall, Executive Director of CEFPI, stated that in the 44 largest school districts in the United States one third of the facilities are over 50 years old, 70 percent are over 25 years old, and less than four percent are under ten years old. With a predicted increase of six million in student enrollment in grades K-12 in the year 2000, the need for new and remodeled facilities cannot be overemphasized (Wall, 1988). Adding to this need is the current legislation lowering class size in elementary schools in some states which

will require more classrooms even without enrollment increases. There is no evidence that building costs will decrease; thus, educational systems throughout the nation will most likely be faced with enormous facility investments. Rather than continue to pour funds into facilities which do not properly address the need of teachers to perform in a professional manner, facilities must be planned which build teacher self-esteem and allow teachers to function to the best of their abilities. Therefore, the problem is to identify those environmental aspects of the school facility which have the potential to enhance learning by enabling the teacher to be truly professional. Then facilities can be planned to serve as the environmental stage on which the teachers may perform as professionals.

Purpose of the Study

While there have been studies made of the teacher as a professional and, on a somewhat limited basis, of the educational facility itself, little has been done to determine how the two interact to enhance student learning (Hawkins, 1987). This study evolved from the work of The Interface Project--The Interface between School Facility and Student Learning--and as such will become a part of a much larger study looking at the whole educational facility. The purpose of this study was to determine the ways teachers perceive that school facilities enhance their ability to function as professionals.

Research Questions

This study sought to answer the following questions:

1. To what degree are teachers who are recognized as outstanding satisfied with the school facilities in which they teach?
2. To what degree do teachers who are recognized as outstanding perceive that the environmental aspects of their school facilities allow them to function as professionals?
3. Which environmental aspects of the school facilities do teachers who are recognized as outstanding perceive as the most important in allowing them to function as professionals?
4. Which environmental aspects require the careful attention of architects, facility planners, and administrators in order to aid teachers to function professionally?

Operational Definitions

For the purpose of this study, the following definitions will be used.

Adaptability Adaptability refers to the ease with which spaces can be changed to accommodate variety in such things as methodology, teaching aids, and student grouping (Castaldi, 1982, p. 117).

Crosstalk	Crosstalk occurs when sounds are transmitted from one space to another through ducts used for ventilation (Castaldi, 1982, p. 276).
Educational Specifications	Educational specifications are "the word pictures" which accurately detail the uses of the facility (Glass, 1986).
Environmental aspects	Environmental aspects are the physical attributes of the educational facility which may support or constrain the teacher. The attributes include spatial form of settings, communication, patterns of activity, and ambience (Becker, 1981, p. 4).
Flexibility	Flexibility is the feature of a facility which allows extensive changes in the space [shape] and the sizes of the instructional areas without threatening the structural system of the building (Castaldi, 1982, p. 178).
Professional	A professional is a respected, competent person who is influential in the workplace and has the opportunity to develop a great sense of accomplishment and even greater competence (Owens, 1987).
The State Teacher of the Year	The State Teacher of the Year is chosen from nominees presented by local districts. The judging is conducted by a panel composed of professional association representatives, a member of the State Board of Education, and the

previous year's winner. The selected teacher becomes a candidate for the national teacher of the year award.

Assumptions

In pursuance of this study, certain assumptions were made:

1. The instrumentation used in this study was valid to measure the degree to which teachers who are recognized as outstanding perceive the environmental aspects of their school facilities to allow them to function as professionals.
2. The instrumentation used in this study was valid to measure the degree to which teachers who are recognized as outstanding are satisfied with their school facilities.
3. The instrumentation used in this study provided valid information as to teacher perceptions of the most important environmental aspects in the school facility in allowing them to function as professionals.
4. The teachers identified as outstanding were correctly identified.
5. The teachers identified as outstanding were knowledgeable and honest in using the instrument.

Limitations

Certain limitations were considered in this study. These were:

1. The findings of this study are based on the opinions of individuals.
2. The findings of this study are based upon the viewpoint of only one teacher within any single facility.
3. The findings of this study are based on the opinions of only a limited number of teachers among the many who could be considered professional.
4. The findings of this study are based on physical environmental aspects and do not include psychological environmental aspects.

Significance of the Study

In order to have effective schools, there must be effective teaching as a teacher with low self-esteem cannot develop high self-esteem in children. Teacher loss of self-esteem occurs when the teacher is not treated as a professional ("Study: Self-Esteem," 1987). Since the study was based on the professionalism of teachers, only teachers who had been recognized nationally as outstanding were included. This was done to ensure input was provided by teachers who were indeed effective and would be cognizant of the role of professional teacher as impacted by the facility. The significance of this study, therefore, directly relates to the

effective school movement by showing the aspects of the physical environment of the school facility which aid the teacher to function as a professional.

Additional significance of this study is found in its relationship to the remodeling and building of school facilities. While this is obviously of importance to educators, as great an importance is found for architects and educational planners. Justification for architectural designs as related to teachers can be made with greater ease and confidence. Rather than pour money into faulty designs, the findings of this study will help guide the entire educational community in designing facilities which will impact learning by providing environment in which the teacher may function as a professional.

Design of the Dissertation

The dissertation is presented in five major chapters. Chapter One has included the statement of the problem, the purpose of the study, pertinent research questions, operational definitions, assumptions and limitations of the research, and a final statement of the significance of the study. Chapter Two provides a review of the literature. Chapter Three details the research methodology. Analysis of the findings is revealed in Chapter Four. Chapter Five contains the summary, conclusions, and implications of the study.

CHAPTER II

REVIEW OF LITERATURE

Weinstein and David (1987) recognized that only limited numbers of practitioners and researchers were focusing on the school facility and its relationship to the teaching/learning process. They stated, furthermore, that the study of school facilities as related to teaching and learning had been fragmented by a lack of synthesis arising from the wide variety of academic disciplines from which these researchers came. Therefore, the material presented in this review of the literature is drawn from the work of environmental and developmental psychologists, sociologists, architects, interior designers, facility planners, and educators in order to present a synopsis of findings.

The literature reviewed in this chapter is concerned with four separate issues. The first issue concerns the impact of the educational facility on the teaching/learning process. The second issue addresses the impact that the educational facility as a whole has on teacher professionalism as related to morale, self-esteem, and performance. The third issue is concerned with environmental conditions within instructional areas which affect teachers' professional performance. The fourth issue is concerned with how noninstructional areas relate to teacher professionalism. Each of these issues is treated in a separate section of the chapter.

The Importance of Recognizing the Impact of the Educational Facility on the Teaching/Learning Process

Hawkins (1987), in addressing the effective school movement, stated the interface of the facility and student learning has not been considered often enough. The National Task Force of the Interface Project under the directorship of Hawkins recognized six areas in which a facility impacts learning: in serving as an integral part of the community, in adapting to users' needs, in aiding communication, in creating a behavioral setting, in addressing individual learning styles, and in enhancing the opportunity for the teacher to function as a professional.

Hawkin's concerns with the lack of consideration being given to the impact of the school facility on student learning were also expressed by others. Spencer (1987) related that the educational reforms called for in the early 1980's certainly affected the school facility, yet the first study to actually examine the implications of school facilities on educational reform was not released until 1986. Not to consider the impact of the facility on the teaching/learning process is a tragedy of long standing which results in educational poverty for students and teachers when a school facility is poorly designed by being based unknowingly--or even purposefully--on false conceptions (Council of Educational Facility Planners, 1968).

Several researchers directly related the importance of recognizing the impact of the school facility on learning to

financial responsibility. School buildings represent such sizeable capital outlay that every conceivable avenue should be investigated to protect the investment without threatening the education of the youth (Castaldi, 1982). In calling for better maintenance, replacement, or upgrading of school facilities, McMilin (1987) proclaimed the estimated $25 billion to accomplish these desires was conservative.

Many researchers saw the lack of concern over the impact of the school facility on learning as reflecting longstanding American attitudes toward school facilities. The public has generally exhibited apathy toward school plants, probably due to a lack of understanding of the role of the facility in the educational process. The facility has been regarded simply as a shelter. Throughout history, the public school facility has been both overcrowded and inadequate (Knezevich, 1975). Gabler (1987) noted schools were first built simply as learning factories with uninviting settings. Gabler suggested the school facility should reflect its importance to society as a whole. Cooper (AASA Commission on School Buildings, 1967) said the school building expresses in material form many aspects of culture. The building symbolizes the ideals of free, self-governing people and, for that reason, school buildings of the future should better reflect those ideals. Keller (1986) maintained American schools are built to be functional with interior and landscaping budgets scrimped; thus the schools are seldom pleasing aesthetically. Yet a well-designed school environment carefully utilizing interior

and exterior components will create an environment more efficient and effective.

Still other researchers focused their concern directly on the importance of the school facility as it affects the effectiveness of teachers. Castaldi (1982) emphasized that skillful teachers in a well-designed and functional school building offering a wide array of visual and electronic aids could reach a level of effectiveness far beyond what was possible if the necessities were not provided. Stenzler (1988) stated the facility can either inhibit and thwart or enhance and support the educational program. He offered the analogy of a surgeon operating in a tent as opposed to a well-equipped and well-planned operating room.

Earthman (1987) observed that the effectiveness of a building is measured by the ways in which it provides for diversified teaching activities. The facility not only affects the performance of its users but also has a positive or negative shaping effect on them.

The Impact of the Educational Facility on Teacher Professionalism as Related to Morale, Self-Esteem, and Performance

As early as 1848, Henry Barnard recognized the relationship of the professional teacher and the school facility by reminding that the school facility was also occupied by the teacher whose physical and mental health as well as professional functioning were enhanced or lessened by the facility itself (Engelhardt, Engelhardt, & Leggett, 1949).

In 1960, the AASA School-Building Commission cited the teacher as the "most important single educative force acting on the learner in a school environment" (p. 37). The commission recognized the need for a school environment which not only lent dignity to teaching but also helped teachers to function professionally. Teacher well-being, morale, and manner of working with children have been identified as being affected by the working environment (AASA School-Building Commission, 1960). Cooper (AASA Commission on School Buildings, 1967) stated the school facility is the teacher's tool and the quality of the teacher's work is affected by that tool. Trump and Baynham (1968) echoed this by stating teachers need an appropriate place to practice the professional work that results in professional teaching. They observed that no one had thoroughly analyzed the school, educational tasks, or the teacher, and that the settings in which most teachers work would inhibit the most creative and competent teaching. Engelhardt (1967) suggested much the same in stating the methods teachers chose to use in teaching are directly related--if only silently--to the facility itself, and the decision made by the teacher often determines which goals are accomplished. Engelhardt supported this assumption with examples of teachers not using overheads in rooms which could not be darkened or curtailing student movement for fear of noise disturbing others.

The school plant can enhance or inhibit what is taught and how it is taught. While the school can be an inspiration

to the students, teachers, and the community, it can also be the opposite. As the largest piece of educational equipment, the school facility should convey to all the importance of the educational environment. Great teaching is made possible by a good building; indeed, the school facility is a spatial interpretation of the educational program (Davis, 1973).

When addressing teacher morale and self-esteem, behavior and environment are almost inseparably intertwined. The sole correlate to job effectiveness and job retention is the extent to which the workers find the environment supportive. The climate in which people function relates to their mood, satisfaction, and self-esteem (Stokols, 1974). Knezevich (1975) supported this finding in his work on teacher morale calling for, among other things, pleasant and comfortable surroundings.

Becker in 1981 delved in depth into workspace concentrating on organizational environments. Becker viewed the physical setting as the teacher's aide stating that the program may run without the proper environmental support, but that it will do so at a far lower level of performance than it should. The role of the physical setting is to allow job activities to be carried out comfortably, effectively, and with dignity. Teachers with higher degrees of competency will rise above the environment while teachers with lower or reduced competence will experience heightened dependency. Thus, the richer environment will increase the level of competency of the inexperienced or less competent teacher.

Becker saw competence as a function of individual capabilities and of environmental support. Becker related this to Herzberg's work with satisfiers/dissatisfiers. Becker felt the physical setting affects both the intrinsic and extrinsic rewards and, therefore, increases job satisfaction. Becker also related the physical environment to Maslow's concept of a hierarchy of needs--ranging from basic needs of security and shelter to higher needs such as self-actualization. An environment resistant to those needs creates boredom, fatigue, and frustration. The environment actually communicates to individuals their place in the organization. Therefore, work surroundings should reflect a basic concern for teachers as individuals with needs for stimulation, beauty, comfort, and identity. Environments which fail to do this restrain competence and lower performance as well as morale.

The study of teacher morale, respect and professionalism was the focus for other researchers in the 80's. Lefwich (1982-83) recognized that highly motivated teachers motivate students. McQuilkin (1982-83) wrote of the importance of respect for teachers, observing that for the last 20 years community, parental, and student respect for teachers and the teaching profession have declined. Stenzler (1987) suggested the actual condition of the physical environment reflects the values, respect, and status given to education and to teachers.

Directly relating to the school facility, Keppel (1986) reported that both the Holmes Group and the Carnegie Task

Force showed unhappiness with the working conditions of teachers which did not foster professional pride. The Interface Task Force (The Interface Project, 1987) also stressed the teachers' work environment in recognizing as one of the six areas in which a facility impacts learning: the environmental aspects of the facility which enhance the opportunity of the teacher to function as a professional.

Boyer ("School reform...," 1988) reported findings in a survey of 13,500 public school teachers in all 50 states which showed that while teachers feel recent reforms have increased student performance, they feel teachers have been bypassed. The teachers feel conditions have worsened and that there has been no improvement on key issues such as teacher/study space. Morale is lower with only one in four teachers feeling community respect for teachers has increased. American Federation of Teachers President Albert Shanker said teachers actually feel mislead with promises of teacher professionalism ("School reform...," 1988).

The Institute for Educational Leadership (IEL) recently published the findings of a one year national study of the working conditions of urban teachers. Woodside, Chairman of the IEL Board, noted that while the private sector has been paying much attention to working conditions and its impact on employees and their productivity, public schools have given little attention to the same questions. Teachers identify adequate physical conditions as one of the five most important conditions for a productive teaching environment. Usdan, IEL

president, stated teacher productivity could and must be improved by upgrading workplace conditions; and that teacher morale must not be allowed to deteriorate to the point long term objectives and goals are forgotten. The study found the effects of good conditions to be positive effects on job satisfaction, teacher attendance, morale, and the level of effort and effectiveness in classrooms (The Institute for Educational Leadership, 1988).

Taylor and Gousie (1988) in discussing the learning environment coined the phrase "habitability framework--a place suitable to be lived in." This they related to Maslow's human needs hierarchy in the form of three subgoals. The first subgoal, health and safety, addresses survival and safety needs and is met by school safety codes. The second subgoal, functional, calls for adequate space and spatial relationships of related areas. The researchers noted that although this area is often addressed, it usually falls short and needs to be better designed for both students and teachers. The third subgoal, psychological and aesthetic needs, Taylor and Gousie felt is barely addressed. The researchers stated that in better designing this area a crucial difference could be made in education. Indeed, physical environment and the learning process are integral parts which cannot be separated. (Taylor & Gousie, 1988; Christopher, 1988).

Environmental Conditions Within Instructional Areas Which Affect Teacher Professional Performance

The environmental aspects impacting the professional performance of teachers have been identified as including location, space utilization, and ambient features. The National Association of Secondary School Principals (1979) underscored the importance of this research by stating teachers knowing the learning styles of students should be able to use the educational facility to design an optimum learning environment. Hathaway (1987) stated by studying the effect of classroom settings on well-being and performance, information is provided which will lead to educational facilities better designed to enhance teaching/learning.

Location

Proper location of the facility itself and of the classroom within the facility aids teachers to perform professionally with ease and convenience. The educational facility itself should be located in such a manner that traffic noise be minimized. Within the structure, location of specific areas should be based on decisions isolating noise producing areas such as the gym and cafeteria, assuring convenience of common areas to uses (such as easy access to the media center), promoting the sharing of facilities, facilitating the scheduling of use, and maximizing numbers of people to be accommodated (Becker, 1981; Castaldi, 1987). The building should provide for the comfort of the occupants--

comfort from constant inconvenience, unnecessary noise, and emotional strain (Engelhardt, et al. 1949).

Space Utilization

Knezevich (1975) stated that not only does the relationship of learning spaces to one another influence the type and quality of instruction, but the size and proportions of the learning space do as well. Knezevich related that the actual kinds of spaces provided should depend on the curriculum itself.

Ryan and Cooper (1972) determined that traditional schools are designed for group instruction and, as a result, a rigid space is provided. Space designed exclusively for one purpose suppresses teachers by dictating how the space is to be used. Rooms should be designed which allow teachers to adapt the room to a variety of uses relevant to their needs.

Castaldi (1987) advocated expandable spaces using movable partitions and suggested that while these may not seem exciting or extraordinary, their use by creative teachers show them capable of greatly enhancing the educational environment. Space diversification capability is a teaching tool. Teachers are not forced to any one arrangement by the facility. Such spaces make teachers feel at ease and even stimulated; thereby, these spaces positively assist teachers to do their best teaching. The teaching decisions made all day long by teachers are strongly influenced by environmental conditions (Neubauer, 1959).

The role of the physical setting is to provide support to carry out work comfortably, effectively, and with dignity. Adequate space is one of the factors which increases user satisfaction (Becker, 1981). Individuals require different amounts and kinds of spaces. Spaces which are too small lead to tension and conflict (Knirk, 1979). Glass (1986) addressed the same issue in stating that the approximate 800 to 900 square feet in the traditional classroom becomes very confining when occupied by a teacher with 20 plus students for five to six hours a day. He asserted that teachers want larger and more flexible classrooms in order to vary instructional methodologies utilizing among many others learning centers and small group instruction. Davis (1973) called for the possibility of decreasing or increasing room size in order that teachers might vary methods in whatever manner they felt would lead to more effective learning.

Studies show that the negative effects of crowding on student behavior and learning limit the ability of the teacher to perform professionally. Crowded conditions make students more possessive, aggressive, and sloven in maintaining physical surroundings (Toepfer, Becknell, Fox, Kirk, & Sayre, 1972). Excessive levels of stress, arousal, and stimulation as well as loss of control are prevalent under crowded conditions. These levels are greater in younger children than in older children who have developed more avoidance strategies (Wohlwill & van Vliet, 1985). Kantz and Risley (1972) also found students in crowded areas pay less attention to the

teacher. In studying crowded space, Becker (1981) found that as space decreases teacher restrictions and control increase, less friendliness and sensitivity are found in teachers' manners, and students show less interest and involvement.

Trump and Baynham (1968) stated that the schools which best utilize the time and talents of teachers are those which provide for the use of modern instructional aids and have flexible school space. Trump and Baynham maintained there is more to teaching than just being in the classroom. Teachers must have and use professionally designed tools and rooms with greater flexibility.

Davis (1973) said the educational space being provided is far too low for efficient methods of instruction. With more emphasis on pupil activity, more space is necessary for pupil movement and student projects. Only the exceptionally intellectual teacher is not limited by present educational facilities.

A recent study discussed instances where teachers were forced to share classroom space (The Institute for Educational Leadership, 1988). The teachers reported they were discouraged by their working conditions, tended to be disorganized, and were unable to focus on their work. Teachers are pleased when a variety of rooms are available allowing options of team teaching or a more self-contained approach (Jolivet, 1988). Gabler (1987) called for areas to be designed for large or small group instruction as well as for individualized instruction.

David and Wright (1975) maintained educators tend to overlook the influence of the physical environment on the teaching/learning process. The learner is no longer the passive listener of Dewey's time, but rather, an active learner requiring novelty and stimulation. Open space classrooms provide this possibility while requiring more teacher skill and attention.

Hoyle (1977) found having at least 20 percent open instructional space encouraged a greater variation in the instructional program. The open space helps to bring teachers together in individualizing student learning experience. Meyers (1971) compared the sense of influence and job satisfaction held by teachers in open space to those in traditional schools. He found teachers in open space schools are better satisfied with their jobs and feel (and expect) greater influence.

Taylor and Gousie (1988) shared a number of findings on open space classrooms: cognitive test scores are not significantly affected; teachers have more frequent interaction, autonomy, and satisfaction in open space classrooms; behaviorly immature children have more difficulty in this type of school; and increased anxiety and off task behavior occurs in students in open space classrooms. Taylor and Gousie stated teachers currently prefer closed or self-contained classrooms. This they attributed to the teachers not being properly trained to teach in open classrooms, the lack of

display and storage space for auditory and visual fields, and the unorganized nature of open space.

The professional teaching decisions of the teacher are affected by after hour access to the educational facility. Engelhardt (1968) found teachers who have access to the lab facilities after school conduct more lab work with their students than teachers who are limited by school hours only facility utilization.

Climate Control and Ventilation

Proper climate control and good ventilation aid the teacher in professional performance. Barnard in 1848 (Knezevich, 1975) wrote that public schools were badly located; cheaply built; exposed to noise, dust, and danger of highways; too small; badly lighted; imperfectly warmed; and poorly ventilated. In 1987, Gabler voiced much the same, saying if education hoped to attract and keep highly qualified teachers and administrators working conditions must improve. She specifically identified the thermal environment, visual environment, acoustics, colors, floor coverings, and technological needs. Gabler commented that few people in business would put up with the thermal extremes found in public schools.

The importance of a good thermal environment in attracting and retaining quality teachers was also recognized by Davis (1973). He stated improvement in environmental conditions increased productivity in industrial and educational workers. Davis also found a positive relationship between

thermal environment and student learning. Castaldi (1982) called for the lessening of fatigue and an increase in comfort and convenience of students and teachers through suitable controlled thermal environments and quiet, well regulated ventilating systems.

In the search for high efficiency energy conservation, the flow of fresh air into the facility may be stifled resulting in impure, polluted air (Hathaway, 1987). Therefore, not only must attention be given to energy conservation, but also to indoor air quality. Poor ventilation and air conditioning has been identified as one of the most aggravating shortcomings in most elementary schools. Stale, hot air lowers efficiency (Glass, 1986). Individuals who are hot, uncomfortable, and fatigued respond less favorably than those who feel cool and comfortable (Griffitt, 1970).

Knirk (1979) stated that while the human organism is highly adaptive, it cannot perform as well if it is uncomfortable. Therefore, he stated, if the facility design ignores temperature, air movement, humidity, and air cleanliness, the facility itself negates its purpose of providing the teacher (and the student) a proper educational environment.

Children definitely react to less than desirable thermal conditions. A teacher in a room too cold faces children who are restless. If the room is too hot, the students daydream (McQuade, 1958). Lord (1977) recommended each room having its own thermostatic control rather than sharing with another classroom. He based this opinion on the fact that like

classrooms are often filled unevenly. A control set for a large group of occupants will freeze a small group. This results not only in overcooling expense but also in personal and political difficulties.

The National Association of Secondary School Principals (1979) recognized the effect of temperature on learning styles. Because individuals have variable tolerance to temperature extremes, teachers should be aware of areas of the room which are cooler or warmer. Teachers can then allow students to choose where they will work according to where they are most comfortable.

Lighting Effects

McQuade (1958) suggested that the environment affects children more than anything else because environment is taken for granted. McQuade maintained if the environment is bad, it can concretely and specifically impede the teaching process. One of the environmental areas McQuade addressed was that of lighting. He stated that good lighting involves not only daylight and electrical lighting, but the whole design and furnishings of the classroom. The task areas should be slightly brighter than the surrounding areas; reflective surfaces from the floor up must be adjusted for glare; and, most importantly, teachers must be able to darken the room to show films and slides.

The ability of children to see well affects mental alertness. When students must expend energy just for seeing in a poorly lighted room, the teacher's effectiveness is

limited by the reduced rate of student learning (Handler, 1960). Davis (1973) maintained individual teacher control of lighting intensity and distribution is essential to effective teaching and learning. Davis also called for a reduction in glare surfaces and a brightened visual task area balancing with surrounding areas.

A report by the National Association of Secondary School Principals (1979) observed light appears to affect fewer people than sound. Most students were unaffected by normal variations of light. However, should it become dark, the light children were previously unaware of is missed. The report recognized that individuals prefer various intensities of light and extremes of either subdued or bright lights could affect performance.

Castaldi (1982) called for the possibility of the teacher to use natural lighting but with the understanding the lighting could be controlled by some type of cover to shield from glare or darken for use of visual aids. Hathaway (1983) found that quality classroom lighting creates a more cheerful environment and provides contentment and comfort that leads to a greater desire to work, more concentration, less fatigue, greater accuracy, and neatness. In a later study, Hathaway (1987) observed the type of lighting used should be designed to users' needs and that more studies should be conducted on lighting and its effects in the teaching/learning process. Gabler (1987) in calling for improved working conditions to attract and keep quality teachers also suggested lighting

levels needed to be adjusted. Lighting affects more than vision. Poor lighting has negative effects on health, hyperactivity, and on task behavior (Taylor & Gousie, 1988).

Color Effects

While color can be used for the diffusion of light and to wipe out dark spots, its artistic use can add not only beauty but educational value as color variations can be stimulating. The use of color should consider not only the purpose of the area but the age group using the area (Engelhardt, et al. 1949; Handler, 1960). Colors affect and influence humans; some stimulate while others depress. Therefore, color selection should be based on the desired level of stimulation in order to improve the learning environment (Hathaway, 1983, 1987). Davis (1973) also called for the careful use of color to enhance the mental, emotional, and physical well-being of students and teachers. He suggested color selection should be individualized to the unique features of each particular school. Keller (1986) recommended the use of color as an unobtrusive backdrop for the teacher and suggested colors should be not tailored to one specific teacher or administrator, but rather to the type of environment desired: calm, gay, festive. Castaldi (1987) suggested a variety of color to avoid monotony. Moore, Elrod, Green, Kidd, Murdaugh, and Stephens (1959) stated the proper scientific use of color is essential for an educational environment of the highest caliber. Gabler (1987) advocated scientific selection and use of colors showing positive effects on

handicapped children. Knirk (1979), Sydoriak (1987), and Castaldi (1987) identified in their work certain colors which seem to positively or negatively influence people in the educational environment. Jolivet (1988) discovered in her study of new facilities that the teachers were very pleased with the use of colors and found them to be conducive to work and to relaxation.

Relating to aesthetics, studies by Maslow (1954) and Maslow and Mintz (1956) showed persons in rooms determined to be beautiful had more positive perceptions of others, their work, and themselves than those persons who were in average or ugly rooms.

Acoustics

The biggest struggle for teachers throughout the year is acoustics. In some schools--due to thin walls--teachers actually compete for attention. In a really bad acoustical room, it is not the children who are miserable, but the teacher who is trying to reach them (McQuade, 1958).

Kyzar's study (1983) found teachers distracted by traffic noise lost six minutes out of every 45 minutes of class time, spent less time explaining and lecturing, were able to elicit less class discussion, and had less verbal interaction than teachers not similarly disturbed. The teachers were forced to alter or eliminate desired teaching practices, had less flexibility in management, had difficulty in covering the desired amounts of subject matter, and had more discipline problems.

Davis (1973) observed that a quiet environment decreases fatigue and mental strain while increasing efficiency and alertness. Therefore, he concluded, acoustical treatment should be a prime consideration. Gabler (1987) also called for improvement in teacher working conditions with a prime consideration being given to soundproofing.

Taylor and Gousie (1988) reported research has shown there are no negative effects on learning when noise occurs over a short time; however, noise over a long period has a negative effect. Knirk (1979) advocated limiting unwanted sound but warned an acoustically dead classroom was also undesirable.

Glass (1985) maintained good acoustics are the result of adequate planning and building design. Excessive noise defeats the purpose of the educational facility. Therefore, consideration must be given to the purpose for which the areas are to be used and by whom at acceptable noise levels. Glass recognized that noise tolerance varies from person to person and that some noise is useful. Useful noise is student/teacher talk and must be protected from extraneous influences in order to have a successful teaching/learning process. Glass observed it takes far less noise to disrupt and prohibit learning than it does to impair the ear. Glass suggested controlling undesirable noise by locating schools away from traffic areas, by careful attention of the location of internal noise producing areas such as band and shop, and by masking with acoustical treatment. Handler (1960) recognized

four basic requirements in planning acoustics for an education facility: low level background noise, adequate separation of successive sounds, proper distribution of sound, and sufficient loudness of sound.

The National Association of Secondary School Principals (1979), in discussing student learning styles, stated sound affects some students more than others. Thus, in planning the educational facility, areas should be provided where students may interact and talk while providing additional areas where students may work in quiet. The teacher is then able to take advantage of the optimum learning environment for individuals and for groups.

Windows

The use or nonuse of windows in the classroom affects teacher performance. Studies by Larson (1965), Knirk (1979), and Castaldi (1982) cited both positive and negative reactions by teachers to the windowless classroom. Teachers preferring windowless classrooms stated the lack of windows reduced distractions, eliminated sunlight glare, allowed for better ventilation and more even temperature across the room, provided for the utilization of more wall space, and allowed greater possibilities in room arrangement. Teachers who viewed windows as positive disliked the closed in feeling felt by both teachers and students in a windowless classroom. Some felt an exterior happening could often be used as an educational stimulus. Castaldi (1982) not only identified the closed in feeling, but also suggested that some psychological

desirability can be found in minimum distraction as psychologists believe that minor distractions actually improve learning. Additionally, Castaldi continued, eye fatigue is reduced by looking at distant objects from time to time. Castaldi suggested horizontal strip windows might actually benefit the teaching/learning process by providing for such incidental distractions.

Larson (1965) and Knirk (1979) both found the use or non-use of windows had little if any affect on learning achievement. However, Larson stated since the original purpose of windows (ventilation and lighting) has been taken over by mechanical air conditioning and artificial illumination, windows now serve the primary function of an educational eye to the outdoors and as such can be beneficial in the classroom.

Floor Coverings

McDaniel (1986) observed that one aid to the teacher in group management is the principle of environmental control. Among the suggestions McDaniel made was that of carpeting floors to lessen distractions and to add comfort. Carpet creates a quiet, aesthetically pleasing atmosphere conducive to learning. Carpet actually assists the teacher by eliminating cold floors; by eliminating floor noise caused by chair, desk, and feet movements; by assisting in acoustics by noise absorption; and by reducing injuries due to falls (Castaldi, 1982).

Carpet provides for more student freedom. Students can sit or lie on the floor allowing the creative teacher an even wider possibility of teaching techniques relating to preferred student learning styles (Davis, 1973). Knirk (1979) recognized the attractiveness of carpet along with the acoustic deadening properties. He cited teachers as saying carpet not only allowed them to provide additional and varied classroom activities, but also caused less fatigue after standing all day.

Classroom Furnishings and Related Features

Flexible classroom furnishings suitable to the needs of the student become an aid to the teacher by providing for versatility in space utilization through the possibility of multiple arrangements (Handler, 1960; Davis, 1973; Becker, 1981; Glass, 1986). The teacher can provide a variety of areas such as small or large group areas, quiet areas, and private areas through the use of varied arrangements of furnishings.

In the evaluation of new school facilities, Jolivet (1988) found teachers were pleased with wide areas to display student work and instructional materials. The teachers were also pleased with the capability for use of varied and multiple electronic equipment.

Davis (1973) recognized as a special concern teacher utilization of technological devices and equipment. Davis (1973), Moore, et al. (1959), Knirk (1979), and Becker (1981) maintained limitations are placed upon teacher usage by the

difficulty in obtaining equipment and the lack of provision for sufficient properly located electrical outlets. Davis suggested this is often so great a problem that teachers find it easier to just lecture rather than to spend time trying to locate equipment.

Teachers want and need more adequate and convenient storage space (Jolivet, 1988; The Institute for Educational Leadership, 1988). Engelhardt, et al. (1949) found storage is often not only inaccessible and insufficient, but also inappropriate for the type of materials to be stored. Material inaccessible may result in forgotten, unused deteriorating materials. Inappropriate storage may result in damaged materials. In aiding teachers to function professionally, Handler (1960), Davis (1973), Castaldi (1982), Leggett (1983), and Glass (1986) all called for the need for efficient, adequate storage. Engelhardt, et al. (1949) observed failure to provide appropriate storage space often results in other spaces being misused.

Environmental Conditions in Noninstructional Areas Which Affect Teacher Professional Performance

Becker (1981) recognizes a task environment (the instructional area) as part of a larger environment he calls the work environment. The task environment may center around the desk where teachers work but broader the work environment includes such spaces as restrooms and the cafeteria (the noninstructional areas). The total environment (work and task) has the potential to aid job performance and satisfaction--even

compensating for intrinsically unrewarding job aspects. Facilities which fail to provide the desired environmental support lead to frustration, boredom, and fatigue. This results in loss of motivation, initiative, and commitment. The environment should communicate to individuals a concern not only for stimulation, beauty, and comfort, but also for their individuality.

Knezevich (1975) and Stenzler (1988) advocated conveying to teachers that they had value and were appreciated by providing pleasant and bright places for adult interaction. Haywood (1959) stated good staff morale could not be overestimated and that providing adequate, attractive, comfortable faculty lounges, workrooms, and restrooms was vital. Boles (1965) stated that it paid, not cost, to provide teachers with comfortable spaces where they could work, plan, or relax privately or together. Hawkins and Overbaugh (1988) called space allowing for teachers to interact, either professionally or socially, essential.

Space needs identified by teachers include workspace, offices, and faculty lounges (The Institute for Education Leadership, 1988; Jolivet, 1988). Brubaker (1987) stated recognition must be made of the need for quality office and workspace for teachers. Trump (1968) observed that an appropriate place to perform professional work underlies professional teaching.

Hathaway (1988) related when teachers are denied private space, they lose a sense of professionalism. Sunstrom and

Kamp (1980) stated people like private workspace not only because of less distraction, but also because such space often signifies importance or status. Thus, the private space actually functions to serve self-identity.

Engelhardt, et al. (1949) recognized the need for teacher offices calling this a place for teachers to concentrate and where related activities could be centered. The type of office depends on the teacher and the school. Additionally, teachers should be provided with conference rooms, mail boxes, bulletin boards for display of teacher related materials, storage areas for private belongings (some of which should be securable), and an eating area away from students. Lounges should be provided, conveniently located, where relaxation is possible without disturbances from smoke, light, or other conversation. A professional library should also be provided for the convenient use of teachers.

One of the chief causes of poor teacher morale is lack of space provided for teacher planning and relaxation. Providing an easily accessible teachers lounge creates good personnel relations and increases productivity. Many lounges currently exist which are make-shift, too small, uncomfortable, and ill-equipped. Teachers should be provided with spaces to prepare, to be alone, or be with other teachers. A center for instructional materials could be located adjacent to or nearby the lounge so teachers may relax as they prepare and plan together (AASA School-Building Commission, 1960).

Leggett (1983) saw a positive lounge environment as having the potential of becoming a central action place of the school, particularly if it were located adjacent to a well equipped workroom. Moore, et al. (1959) noted the social atmosphere to be found in a well planned workroom/lounge promoted and maintained faculty unit and collegiality.

Handler (1960) wrote of the physical and psychological comfort of teachers (which he said are often ignored) which can greatly aid morale. Regardless how small the school, teachers should be provided with a room away from children and an eating area where they can eat alone or with other teachers. Handler maintained good planning calls for storage space for the safe keeping of personal belongings, a professional library, resting and eating facilities, car parking, and teacher restroom facilities. Handler saw the aim of teacher facilities to be to conserve time, movement, and energy while promoting stimulation and relaxation.

Summary

In summary, the collected findings of environmental and developmental psychologists, sociologists, architects, interior designers, facility planners, and educators show the physical environment to have a profound effect on the professional functioning of teachers. The task environment within the classroom affects not only students physically and psychologically, but teachers as well. That which distracts or causes discomfort for students also distracts and causes

discomfort for teachers. The classroom often provides a non-supportive--even hostile--environment for teachers to perform professional tasks. Space utilization, ambient features, and storage are and should be interwoven with other physical aspects to provide a comfortable, efficient, and effective teaching/learning environment.

The physical environment of the educational facility should go beyond the classroom itself in supporting teacher professionalism. Positive self-concept and morale leading to job satisfaction and greater competency can be aided by specialized areas such as professional libraries, lounges, conference rooms, and work areas. Providing teachers with instructional and noninstructional spaces which support the development and deliverance of a sound educational program is essential to the continued development and support of professionalism in teachers. Therefore, those aspects of the physical environment which teachers perceive to aid or to hinder them professionally need to be carefully identified.

CHAPTER III

METHODOLOGY

Population and Sample

The purpose of this nationwide study was to determine the ways teachers perceive that school facilities enhance their ability to function as professionals. Therefore, the population consisted of teachers--both elementary and secondary--who were identified for the year 1988 as The State Teacher of the Year by the Council of Chief State School Officers. The teachers represented various geographic regions and discipline areas and were widely ranged in years of experience.

Instrumentation

A survey instrument (Appendix A) was developed to identify the aspects of the physical environment within a school facility which were found by The Interface Task Force and in the literature as having an impact on the ability of teachers to function professionally. The instrument solicited teacher responses as to which of the aspects were the most important and the degree to which the aspects were viewed negatively or positively.

The instrument was developed using methods recommended in Educational Research (Borg & Gall, 1983) and was drawn from the work of Kasmar, The Development of a Usable Lexicon of Environmental Descriptors (1970), and Osgood, Suci, and Tannebaum, The Measurement of Meaning (1967). The Vocational

Teacher Questionnaire (Crowell, 1980) which addressed many of the identified aspects was also consulted.

A number of methods were designed for use within the instrument for the collection of the desired data. One method used a seven-step descriptive scale between word pair descriptors (Appendix A, Questions 6-53 and 55-87). The steps were given a weight of one (lowest) to seven (highest) from negative to positive. For example:

inconvenient 1 : 2 : 3 : 4 : 5 : 6 : 7 : convenient

(negative satisfaction) (positive satisfaction)

Therefore, the lowest score for a word pair was one, and the highest seven. Respondents were required to rate their environment toward the direction most characteristic of that environment.

To obtain the most frequent score for each environmental aspect, the scores for the word pair descriptors of the indicated aspect were collapsed together. The response (one to seven) which appeared most often was considered to be the most frequent score. There were no tests for statistical differences in frequencies of response. Therefore, scores were based simply on the number of responses for each score (one to seven). Importance should be given to the possibility that a different frequency score for each environmental aspect might have resulted had the score been computed differently,

such as by using the percentage of scores in the negative and positive satisfaction ranges.

A second method used was a five-degree rating scale (Appendix A, Questions 88-105). The choices given to respondents were none (one), very low (two), moderately low (three), moderately high (four), and very high (five). Respondents were asked to indicate to what degree the identified environmental aspects provided teachers the opportunity to function as professionals.

A third method was a simple ranking of one to five, using one as the most important and five as the least important (Appendix A, Question 54). Respondents ranked the five environmental aspects of their instructional area they felt were the most important to their professional performance.

A fourth method used in the instrument to collect data asked the respondents to provide comment (Appendix A, Questions 6-87). The resulting commentary was used for extension and clarification of teacher responses.

The instrument was pilot tested using teachers who were finalists in the selection of the 1988 Texas State Teacher of the Year Award. In April of 1988 letters (Appendix B) were sent to the pilot group requesting their input on the instrument. Self-addressed, stamped return envelopes were provided for convenience. The instrument was also submitted to a panel comprised of representative members of the Texas A&M Task Force of The Interface Project (Hawkins and Overbaugh, 1988) for content validity. The comments and suggestions of both

the panel and the pilot group were used to make adjustments in the instrument.

Procedures

In April, a letter (Appendix C) explaining the purpose and importance of the study was sent to the population group asking for their assistance in the research. Of the 53 teachers asked to participate, affirmative responses were received from 40. Negative responses were received from two.

Efforts were made in June to contact by phone the 11 teachers from whom no response had been received. The three teachers contacted by phone agreed to participate; five teachers could not be reached and no additional information on phone numbers and mailing addresses was available. New mailing addresses were obtained for the remaining three teachers.

Later in June the 43 teachers who had agreed to participate were sent a letter of appreciation (Appendix D), the instrument (Appendix A), and a self-addressed, stamped return envelope. At the same time, a second letter (Appendix E) along with the instrument and a self-addressed, stamped return envelope was sent to the three nonrespondents for whom new addresses had been provided.

The instrument, in the form of a questionnaire, was coded to provide anonymity to the respondents. This was done by assigning numbers from one to 46 to the alphabetical list of participating State Teachers of the Year. The number was

placed inconspicuously on the back of one page of the questionnaire. Of the 46 teachers who were mailed the instrument, 38 responded. This gave a response rate of 82.6%.

Data Analysis

This research used primarily descriptive procedures. The personal information requested was tabulated and entered into the computer for future use in statistical analysis.

Those questions of the instrument answered using the seven steps between word pair descriptions were quantified (Appendix A, Questions 6-53 and 55-87). These scores were entered in the computer according to the environmental aspect to which they referred and correlated to each respondent's personal information.

The questions of the instrument in the form of a rating scale from none (one) to very high (five) (Appendix A, Section II, Part A, Questions 88-105), were entered by recording the degree indicated for each environmental aspect and were also matched to each respondent's personal information.

The data entries made possible the computer recall of information obtained from each member of the population for purposes of analysis. The use of frequency scores as opposed to an average of scores was chosen in order to provide information on the actual choices of the respondents. Using the SAS program, a frequency score was derived for each environmental aspect based on the frequency of the total responses to each word pair description.

Question 54 (Appendix A) required the respondents to rank the aspects in importance from one (highest) to five (lowest); therefore, it was necessary to quantify the scores. A vote of one received five points, two received four points, three received three points, four received two points, and a vote of five, one point. Only the aspects receiving the top five total scores were quantified in this manner.

Crosstabulation and the Chi square test of independence were computed to test for any differences in frequency distribution. Crosstabulations were by gender, teaching level (elementary and secondary), and years experience (15 years or less and above 15 years). Only the statistically significant results ($P<0.05$) are reported in this study.

The information requested for Section II, Parts B, C, and D (Appendix A) required individual comments. Due to the vast amount of information obtained, these responses were tabulated for frequency and only those found to be recognized by many of the respondents are included.

CHAPTER IV

PRESENTATION AND ANALYSIS OF DATA

Tabulated results of the data collected from respondents are presented in the following sections: Demographics, Data Analysis Overview, Instructional Area, Noninstructional Features, Special Areas, and Questionnaire Section II: Perceptions.

Demographics

The personal data sought from respondents consisted of gender, teaching level, specialization, years experience, number of buildings taught in during teaching career, type of instructional area, and number of hours spent in the area.

Of the 46 teachers mailed the instrument, 22 secondary teachers and 16 elementary teachers responded. Thirteen of the 15 responding male teachers taught in secondary schools (grades 6-12) and two taught in elementary schools (grades K-5). Of the 23 female teachers, nine taught in secondary schools and 14 in elementary schools. Six male teachers and two female teachers did not respond. Four of the nonresponding male teachers taught in secondary schools and two in elementary schools. Both of the nonresponding female teachers taught in secondary schools.

Teaching experience ranged from five to 41 years with the middle being 15 years. The teachers were placed in two groups: those with more than 15 years experience (21 teachers) and those with 15 or less years experience (17 teachers).

The number of buildings in which each respondent had taught ranged from one to 11, with two buildings being the most frequent response.

Twenty-seven of the teachers taught in self-contained classrooms, five in open space classrooms, and the remaining six in laboratory areas. The hours spent in each area ranged from four to 10, with the most frequent response being six hours.

Data Analysis Overview

An overview is presented to provide a general picture of the overall data analysis. Additional information obtained from teacher comments and more detailed explanations of significant differences and of the environmental aspects will be found in the sections to which they are applicable. Tables are also provided in those sections for environmental aspects where significant differences were found.

For data analysis, the most frequent score (based on responses to the seven-step descriptive scale) was obtained for each environmental aspect. The frequency score was obtained from the score chosen most often when the word pair descriptors for the indicated environmental aspect were collapsed together. Therefore, the frequency score reflects simply the number of responses for each score (one to seven). The possibility exists that a different frequency score might have been obtained had the score been computed differently,

such as by using the percentage of scores in the negative and positive satisfaction ranges.

Scores of one through three were identified as negative (lowest to low satisfaction) while scores of five through seven were viewed as positive (high to highest satisfaction). A score of four indicates the respondents had no strong feelings, either negative or positive, but were neutral or average on the identified aspect.

As reflected in Table 1, Most Frequent Responses to Environmental Aspects of School Facilities, the respondents chose, almost without exception, a strong feeling score of negative or positive.

Of the 20 identified environmental aspects, the respondents were well satisfied with 13 as shown by scores of six and seven. These aspects were Location, Ambient Features, Windows, Floor Coverings, Classroom Furnishings, Classroom Equipment, Teacher Storage, Electrical Outlets, Summary, Teacher Restrooms, Teacher Parking, Equipment for Teacher Use, and Combination Area.

Seven environmental aspects were sources of great teacher dissatisfaction. These were Space Utilization, Telephones for Teacher Use, Teacher to Teacher Conference Areas, Teacher Professional Libraries, Teacher Planning Area, Teacher Lounge Area, and Teacher Dining Area.

Table 1. Most Frequent Responses to Environmental Aspects of School Facilities

Environmental Aspect	Most Frequent Response
Instructional Area:	
Location	6
Space Utilization	1
Ambient Features	7
Windows	7
Floor Coverings	7
Classroom Furnishings	7
Classroom Equipment	6
Teacher Storage	7
Electrical Outlets	7
Summary (overall response to instructional area)	6
Noninstructional Features:	
Telephones for Teacher Use	1
Conference Areas	
Parent and Student	7-1
Teacher to Teacher	1
Teacher Restrooms	7
Teacher Parking	7
Teacher Professional Library	1
Equipment for Teacher Use	7
Special Areas:	
Teacher Planning Area	1
Teacher Lounge Area	2
Teacher Dining Area	2
Combination Area	7
Other Areas	-

Scores 1-3 = negative (lowest to low satisfaction)
Score 4 = neutral/average (no strong feelings)
Scores 5-7 = positive (high to highest satisfaction)

The respondents were divided in scoring Parent and Student Conference Areas. The lowest satisfaction score of one and the highest satisfaction score of seven were equally chosen.

Other than Space Utilization, the greatest teacher dissatisfaction appeared in noninstructional features such as Teacher Telephones, Teacher to Teacher Conference Areas, and the Professional Library. Additionally, special areas were for the most part viewed negatively. Only two respondents indicated Other Area, so a frequency score was not given for this area due to so few responses.

The Summary score of six--a very positive view--showed teachers to be well satisfied on the whole that their educational facilities enhanced teacher professional performance.

Data analysis using Chi square showed significant differences ($P<0.05$) when viewed by gender, teaching level, and years of experience.

As shown in Table 2, significant differences were most prevalent by gender and teaching level.

The areas showing significant differences by gender were Ambient Features, Floor Coverings, Classroom Furnishings, Classroom Equipment, Teacher Storage, Electrical Outlets, Telephones, Conference Areas (both Parent and Student and Teacher to Teacher), Equipment for Teacher Use, Teacher Lounge Area, and Teacher Dining Area.

Table 2. Significant Differences by Gender, Teaching Level, and Years Experience in Responses to Environmental Aspects of School Facilities

Environmental Aspect	Chi square Probability		
	Gender	Teaching Level	Years Experience
Instructional Area:			
Ambient Features	0.031*	0.035*	
Windows			0.005*
Floor Coverings	0.003*		
Classroom Furnishings	0.002*	0.007*	0.034*
Classroom Equipment	0.017*	0.025*	
Teacher Storage	0.041*	0.025*	0.004*
Electrical Outlets	0.015*		
Noninstructional Features:			
Telephones for Teacher Use	0.002*		
Conference Areas			
Parent and Student	0.000*	0.017*	
Teacher to Teacher	0.001*	0.020*	
Equipment for Teacher Use	0.019*	0.003*	
Special Areas:			
Teacher Planning Area			0.000*
Teacher Lounge Area	0.004*	0.055*	0.028*
Teacher Dining Area	0.007*	0.054*	

*(P<0.05)

The areas showing significant differences by teaching level were Ambient Features, Classroom Furnishings, Classroom Equipment, Teacher Storage, Conference Areas (both Parent and Student and Teacher to Teacher), Equipment for Teacher Use, Teacher Lounge Area, and Teacher Dining Area.

Significant differences were found by experience in the area of Windows, Classroom Furnishings, Teacher Storage, Teacher Planning Area, and Teacher Lounge.

Instructional Area

Teachers were asked to respond to environmental aspects in their present facilities indicating on a word pair descriptive scale that which was most characteristic of the area in which they spent the majority of their time. This was constructed to obtain information on the perception of the identified outstanding teachers on their current instructional areas.

Location

The most frequent score for location was six with no significant differences found by gender, teaching level, or years experience. This score indicates high teacher satisfaction with location. Teacher comments were made citing noise as a problem due to classroom proximity to delivery areas, dumpsters, gyms, lunchrooms, and weight areas. Two teachers who taught in open space classrooms addressed noise due to the number of activities in one location, but felt this was not

a severe problem. The actual classroom location itself was a negative factor for a teacher in a three-story facility.

Space Utilization

Space utilization received a most frequent score of one indicating the greatest possible dissatisfaction. There were no significant differences by gender, teaching level, or years experience. Thirty-three of the respondents indicated they did not have expandable walls. One respondent stated that while the walls could be changed, a special work crew was necessary to do so. Major concerns were small, odd-shaped rooms overcrowded by the number of students. Two classrooms had been obtained when a library and a gym were remodeled. The resulting rooms were viewed as small and poorly designed. In one instance of an overly crowded small room, smaller desks were ordered to give more space. In a new school, the teacher commented the rooms "were a little small."

Three teachers specifically complained of not enough bulletin/chalkboard space. Four teachers did provide positive comments: an old building, but big classrooms; the classroom was well designed by reading teachers, has easy access to the media center, and is next to the computers; an open area which can be changed by moving furniture. Only one teacher commented on after-hour access stating the installation of an alarm system had now made that impossible.

Ambient Features

The most frequent score for ambient features was seven, revealing highest satisfaction. A significant difference was found by gender (0.031) and by teaching level (0.035).

Female teachers tended to be better satisfied with ambient features than male teachers. Male teacher responses were more evenly dispersed with a slight concentration at the lower end of the ranking scale. As shown by row percentage in Table 3, Quantified Responses to Ambient Features by Gender, female teachers marked the positive satisfaction scores more frequently with the score of seven (highest satisfaction) being the most frequent female teacher score and the least frequent score for male teachers. The most frequent male teacher score was score two (a negative, lower satisfaction response).

Table 3. Quantified Responses to Ambient Features by Gender

	NEGATIVE SATISFACTION				POSITIVE SATISFACTION			
	lowest 1	lower 2	low 3	average 4	high 5	higher 6	highest 7	TOTAL
FEMALE								
Frequency	24	16	15	28	20	34	43	180
%	8.00	5.33	5.00	9.33	6.67	11.33	14.33	60.00
Row %	13.33	8.89	8.33	15.56	11.11	18.89	23.89	
Column %	60.00	44.44	44.12	62.22	55.56	65.38	75.44	
MALE								
Frequency	16	20	19	17	16	18	14	120
%	5.33	6.67	6.33	5.67	5.33	6.00	4.67	40.00
Row %	13.33	16.67	15.83	14.17	13.33	15.00	11.67	
Column %	40.00	55.56	55.88	37.78	44.44	34.62	24.56	
TOTAL								
Frequency	40	36	34	45	36	52	57	300
%	13.33	12.00	11.33	15.00	12.00	17.33	19.00	100.00

Chi square probability = 0.031
Frequency missing = 4
P<0.05

As shown by row percentage in Table 4, Quantified Responses to Ambient Features by Teaching Level, the most frequent score marked by elementary teachers was score six, a positive, high satisfaction marking. The most frequent secondary teacher score was seven which indicates the highest degree of satisfaction. While most elementary teachers showed average to high satisfaction with ambient features, there was a small concentrated number of respondents who ranked the aspect extremely low. Secondary teachers tended to be more evenly scattered with a higher concentration showing average to high satisfaction.

Table 4. Quantified Responses to Ambient Features by Teaching Level

	NEGATIVE SATISFACTION				POSITIVE SATISFACTION			
	lowest 1	lower 2	low 3	average 4	high 5	higher 6	highest 7	TOTAL
ELEMENTARY								
Frequency	14	9	9	23	13	28	20	116
%	4.67	3.00	3.00	7.67	4.33	9.33	6.67	38.67
Row %	12.07	7.76	7.76	19.83	11.21	24.14	17.24	
Column %	35.00	25.00	26.47	51.11	36.11	53.85	35.09	
SECONDARY								
Frequency	26	27	25	22	23	24	37	184
%	8.67	9.00	8.33	7.33	7.67	8.00	12.33	61.33
Row %	14.13	14.67	13.59	11.96	12.50	13.04	20.11	
Column %	65.00	75.00	73.53	48.53	63.89	46.15	64.91	
TOTAL								
Frequency	40	36	34	45	36	52	57	300
%	13.33	12.00	11.33	15.00	12.00	17.33	19.00	100.00

Chi square probability = 0.035
Frequency missing = 4
$P<0.05$

One teacher commented that the ambient features were the things that lead to the most teacher dissatisfaction. Five

teachers stated the room itself was drab, but through their creativeness with personal items and the display of student work, the rooms were made quite colorful and cheerful.

In two instances, the teachers personally painted the rooms themselves. Five teachers related acoustics were poor due to the location over the band hall, noise from the hallway and other classrooms, noise from the banging of the steam heating system, and noise from the air conditioning unit. Twelve respondents complained of the thermal environment. Comments were: temperature controlled in central areas other than the facility itself (one control station was located 300 miles away); unreliable--cold in the winter, hot in the summer; teachers not allowed to touch the thermostats; workmen still working on the air conditioning of a new school; the heat was turned off in the winter when the students left so the teachers, who were required to stay later, were hampered in planning and working due to the cold.

Windows

The most frequent score for Windows was seven indicating highest satisfaction. A significant difference (0.005) was found by years experience.

Teachers with less than 15 years experience tended to rank windows with average or high satisfaction. As a whole, teachers with more than 15 years experience viewed windows with high satisfaction; however, a small group showed great dissatisfaction.

As shown by row percentage in Table 5, Quantified Responses to Windows by Years Experience, the highest score of seven was the most frequent choice for both groups. Of the more experienced group, the most frequent choices were in the positive, high satisfaction ranges. However, of the less experienced group more choices were found in the negative, low satisfaction ranges.

Table 5. Quantified Responses to Windows by Years Experience

	NEGATIVE SATISFACTION				POSITIVE SATISFACTION			
	lowest 1	lower 2	low 3	average 4	high 5	higher 6	highest 7	TOTAL
0-15 YEARS								
Frequency	5	8	6	15	4	14	32	84
%	2.79	4.47	3.35	8.38	2.23	7.82	17.88	46.93
Row %	5.95	9.52	7.14	17.86	4.76	16.67	38.10	
Column %	31.25	80.00	60.00	83.33	44.44	38.89	40.00	
ABOVE 15 YEARS								
Frequency	11	2	4	3	5	22	48	95
%	6.15	1.12	2.23	1.68	2.79	12.29	26.82	53.07
Row %	11.58	2.11	4.21	3.16	5.26	23.16	50.53	
Column %	68.75	20.00	40.00	16.67	55.56	61.11	60.00	
TOTAL								
Frequency	16	10	10	18	9	36	80	179
%	8.94	5.59	5.59	10.06	5.03	20.11	44.69	100.00

Chi square probability = 0.005
Frequency missing = 11
$P<0.05$

Teacher comments were varied. One teacher indicated having a room with no windows while another had one small window in the door, three teachers had windows which did not open or were too difficult to open, two respondents had windows (three or four in each case) which were broken and had

not been replaced (in one case, for three or four years), one teacher complained of a whole wall of windows as being too many and too large while another with similar conditions only objected that they could not be opened. Another teacher was unable to open windows because there were no screens to keep out insects.

Floor Coverings

Seventeen respondents indicated the floors of their instructional areas were carpeted, 11 had hard surface covering, three had a combination of the two, and seven did not indicate the type of surface they had.

The most frequent score for Floor Coverings was seven (highest satisfaction). A significant difference (0.003) was found by gender. Most female teachers viewed their floor covering as very satisfactory or average. While most male teachers similarly responded, more female teachers than male teachers indicated choices in the unsatisfactory ranges.

As shown by row percentage in Table 6, Quantified Responses to Floor Coverings by Gender, female teachers chose score seven (highest satisfaction) as the most frequent female teacher choice. The most frequent male teacher choice was score six (higher satisfaction).

Table 6. Quantified Responses to Floor Coverings by Gender

	NEGATIVE SATISFACTION				POSITIVE SATISFACTION			
	lowest 1	lower 2	low 3	average 4	high 5	higher 6	highest 7	TOTAL
FEMALE								
Frequency	7	2	4	22	6	16	31	88
%	4.73	1.35	2.70	14.86	4.05	10.81	20.95	59.46
Row %	7.95	2.27	4.55	25.00	6.82	18.18	35.23	
Column %	100.00	20.00	80.00	75.86	42.86	45.71	64.58	
MALE								
Frequency	0	8	1	7	8	19	17	60
%	0.00	5.41	0.68	4.73	5.41	12.84	11.49	40.54
Row %	0.00	13.33	1.67	11.67	13.33	31.67	28.33	
Column %	0.00	80.00	20.00	24.14	57.14	54.29	35.42	
TOTAL								
Frequency	7	10	5	29	14	35	48	148
%	4.73	6.76	3.38	19.59	9.46	23.65	32.43	100.00

Chi square probability = 0.003
Frequency missing = 4
$P<0.05$

Carpet was not desired by several teachers. One who had carpet did not want carpet due to the static effect carpet causes on magnetic media. Two teachers preferred hard surfaces due to the type of classwork done in their instructional area. Another who had carpet was unhappy because of the age (over 17 years old) and condition of the carpet. A teacher who had carpeted walls as well as floors and was very pleased. A combination of hard surface and carpet was desired by two respondents. One respondent commented on the beauty

of oak floors, but offset the comment with statements regarding the difficulty of proper maintenance. One teacher stated the hard wood floor was buckled from water damage. Cement floors were described as being dirty, hard on the teachers' legs, and terrible for acoustics.

Classroom Furnishings

The most frequent score for Classroom Furnishings showed highest satisfaction with a score of seven. Significant differences were found by gender (0.007), by teaching level (0.009), and by years experience (0.034).

Female teachers basically viewed classroom furnishings as average to highly satisfactory. Male teachers were not quite as pleased as female teachers, but still showed more frequent choices in the average to highly satisfactory range.

As shown by row percentage in Table 7, Quantified Responses to Classroom Furnishings by Gender, female teachers chose score seven (highest satisfaction) as their most frequent choice. The most frequent choice for male teachers was score six (higher satisfaction).

Table 7. Quantified Responses to Classroom Furnishings by Gender

	NEGATIVE SATISFACTION				POSITIVE SATISFACTION			
	lowest 1	lower 2	low 3	average 4	high 5	higher 6	highest 7	TOTAL
FEMALE								
Frequency	6	15	8	22	20	48	64	183
%	1.98	4.95	2.64	7.26	6.60	15.84	21.12	60.40
Row %	3.28	8.20	4.37	12.02	10.93	26.23	34.97	
Column %	42.86	65.22	44.44	47.83	46.51	62.34	78.05	
MALE								
Frequency	8	8	10	24	23	29	18	120
%	2.64	2.64	3.30	7.92	7.59	9.57	5.94	39.60
Row %	6.67	6.67	8.33	20.00	19.17	24.17	15.00	
Column %	57.14	34.78	55.56	52.17	53.49	37.66	21.95	
TOTAL								
Frequency	14	23	18	46	43	77	82	303
%	4.62	7.59	5.94	15.18	14.19	25.41	27.06	100.00

Chi square probability = 0.002
Frequency missing = 1
$P<0.05$

Table 8, Quantified Responses to Classroom Furnishings by Teaching Level, shows that score seven (highest satisfaction) was the most frequent choice for elementary teachers. The most frequent choice for secondary teachers was score six (higher satisfaction).

Table 8. Quantified Responses to Classroom Furnishings by Teaching Level

	NEGATIVE SATISFACTION				POSITIVE SATISFACTION			
	lowest 1	lower 2	low 3	average 4	high 5	higher 6	highest 7	TOTAL
ELEMENTARY								
Frequency	6	10	4	11	12	31	45	119
%	1.98	3.30	1.32	3.63	3.96	10.23	14.85	39.27
Row %	5.04	8.40	3.36	9.24	10.08	26.05	37.82	
Column %	42.86	43.48	22.22	23.91	27.91	40.26	54.88	
SECONDARY								
Frequency	8	13	14	35	31	46	37	184
%	2.64	4.29	4.62	11.55	10.23	15.18	12.21	60.73
Row %	4.35	7.07	7.61	19.02	16.85	25.00	20.11	
Column %	57.14	56.52	77.78	76.09	72.09	59.74	45.12	
TOTAL								
Frequency	14	23	18	46	43	77	82	303
%	4.62	7.59	5.94	15.18	14.19	25.41	27.06	100.00

Chi square probability = 0.007
Frequency missing = 1
$P<0.05$

Teachers with less than 15 years experience showed average to high satisfaction with classroom furnishings. While teachers with 15 and more years experience expressed similar feelings, there were many "more experienced" teachers who were dissatisfied than there were "less experienced" teachers. As shown by row percentage in Table 9, Quantified Responses to Classroom Furnishings by Years Experience, teachers with 15 or less years experience chose score six (higher satisfaction) more frequently. For the more experienced group (15 years or more), score seven (highest satisfaction) was the most frequent choice.

Table 9. Quantified Responses to Classroom Furnishings by Years Experience

	NEGATIVE SATISFACTION				POSITIVE SATISFACTION			
	lowest 1	lower 2	low 3	average 4	high 5	higher 6	highest 7	TOTAL
0-15 YEARS								
Frequency	1	9	5	23	21	41	35	135
%	0.33	2.97	1.65	7.59	6.93	13.53	11.55	44.55
Row %	0.74	6.67	3.70	17.04	15.56	30.37	25.93	
Column %	7.14	39.13	27.78	50.00	48.84	53.25	42.68	
ABOVE 15 YEARS								
Frequency	13	14	13	23	22	36	47	168
%	4.29	4.62	4.29	7.59	7.26	11.88	15.51	55.45
Row %	7.74	8.33	7.74	13.69	13.10	21.43	27.98	
Column %	92.86	60.87	72.22	50.00	51.16	46.75	57.32	
TOTAL								
Frequency	14	23	18	46	43	77	82	303
%	4.62	7.59	5.94	15.18	14.19	25.41	27.06	100.00

Chi square probability = 0.034
Frequency missing = 1
$P<0.05$

Three teachers indicated they had new or relatively new furniture. Two of the three were pleased; however, the third stated the three year old desks were falling apart despite careful use. Five teachers indicated they had old furniture in an assortment of unmatching pieces which were splintering and wobbly. One respondent observed the desks and chairs did not fit children while another recognized the storage space within the desk as being too small.

Classroom Equipment

Classroom Equipment received the most frequent score of six indicating a high degree of satisfaction. Significant differences were found by gender (0.017) and teaching level (0.025).

Female and male teachers were found to be satisfied to very satisfied with classroom equipment. However, male teachers did not show the highest degree of satisfaction as often as female teachers. Noticeable numbers of both males and female teachers did show, however, dissatisfaction with their classroom equipment with female teachers showing the greatest degree of dissatisfaction. As shown by row percentage in Table 10, Quantified Responses to Classroom Equipment by Gender, female teachers marked score seven (highest satisfaction) more frequently while male teachers marked six (high satisfaction) more frequently.

Table 10. Quantified Responses to Classroom Equipment by Gender

	NEGATIVE SATISFACTION				POSITIVE SATISFACTION			
	lowest 1	lower 2	low 3	average 4	high 5	higher 6	highest 7	TOTAL
FEMALE								
Frequency	14	7	6	7	11	22	24	91
%	9.27	4.64	3.97	4.64	7.28	14.57	15.89	60.26
Row %	15.38	7.69	6.59	7.69	12.09	24.18	26.37	
Column %	87.50	41.18	60.00	38.89	47.83	62.86	75.00	
MALE								
Frequency	2	10	4	11	12	13	8	60
%	1.32	6.62	2.65	7.28	7.95	8.61	5.30	39.74
Row %	3.33	16.67	6.67	18.33	20.00	21.67	13.33	
Column %	12.50	58.82	40.00	61.11	52.17	37.14	25.00	
TOTAL								
Frequency	16	17	10	18	23	35	32	151
%	10.60	11.26	6.62	11.92	15.23	23.18	21.19	100.00

Chi square probability = 0.017
Frequency missing = 1
$P<0.05$

Elementary teachers responded for the most part with above average to highly satisfactory ranks in classroom

equipment. Secondary teachers responded similarly with, however, more frequent choices in the negative to average ranges than were found in elementary choices. Table 11, Quantified Responses to Classroom Equipment by Teaching Level, shows elementary teachers choosing score seven (highest satisfaction) as first choice. The most frequent choice for secondary teachers was score six (higher satisfaction).

Table 11. Quantified Responses to Classroom Equipment by Teaching Level

	NEGATIVE SATISFACTION				POSITIVE SATISFACTION			
	lowest 1	lower 2	low 3	average 4	high 5	higher 6	highest 7	TOTAL
ELEMENTARY								
Frequency	8	4	3	3	10	12	20	60
%	5.30	2.65	1.99	1.99	6.62	7.95	13.25	39.74
Row %	13.33	6.67	5.00	5.00	16.67	20.00	33.33	
Column %	50.00	23.53	30.00	16.67	43.48	34.29	62.50	
SECONDARY								
Frequency	8	13	7	15	13	23	12	91
%	5.30	8.61	4.64	9.93	8.61	15.23	7.95	60.26
Row %	8.79	14.29	7.69	16.48	14.29	25.27	13.19	
Column %	50.00	76.47	70.00	83.33	56.52	65.71	37.50	
TOTAL								
Frequency	16	17	10	18	23	35	32	151
%	10.60	11.26	6.62	11.92	15.23	23.18	21.19	100.00

Chi square probability = 0.025
Frequency missing = 1
P<0.05

Four teachers expressed concern over a lack of chalkboards and bulletin boards while two were well pleased with what they had. Nine respondents saw a need for more and new audiovisual and computer equipment. Three respondents had to share computers with others, using a rotating check out system. One teacher indicated bringing audiovisual equipment

from home to use in the classroom. Another teacher commented the school supplied teachers with a computer for their classroom and another for home use. The same teacher stated, however, that audiovisual equipment was so scarce or hard to reserve for use that it was rarely used. Two teachers felt they had excellent computers and audiovisual equipment, both in quantity and quality. A teacher in a new school observed that more computers and audiovisual equipment were on the way, but low bid items had proven to be of poor quality.

Teacher Storage

The most frequent score for Teacher Storage was seven. Significant differences were found in gender (0.041) and teaching level (0.025).

While both male and female teachers showed most frequently high satisfaction with teacher storage, both male and female teachers also showed strong dissatisfaction. Female teachers were more strongly dissatisfied with storage than male teachers. As shown by row percentage in Table 12, Quantified Responses to Teacher Storage by Gender, score seven (highest satisfaction) was chosen by female teachers as their most frequent choice. The most frequent choice for male teachers was score six (higher satisfaction). Female teachers chose the negative, satisfaction scores of one and two more frequently than did male teachers.

Table 12. Quantified Responses to Teacher Storage by Gender

	NEGATIVE SATISFACTION				POSITIVE SATISFACTION			
	lowest 1	lower 2	low 3	average 4	high 5	higher 6	highest 7	TOTAL
FEMALE								
Frequency	19	15	6	3	1	22	26	92
%	12.67	10.00	4.00	2.00	0.67	14.67	17.33	61.33
Row %	20.65	16.30	6.52	3.26	1.19	23.91	28.26	
Column %	65.52	75.00	42.86	33.33	16.67	62.86	70.27	
MALE								
Frequency	10	5	8	6	5	13	11	58
%	6.67	3.33	5.33	4.00	3.33	8.67	4.33	18.97
Row %	17.24	8.62	13.79	10.34	8.62	22.41	18.97	
Column %	34.48	25.00	57.14	66.67	83.33	37.14	29.73	
TOTAL								
Frequency	29	20	14	9	6	35	37	150
%	19.33	13.33	9.33	6.00	4.00	23.33	24.67	100.00

Chi square probability = 0.041
Frequency missing = 2
$P<0.05$

As shown by row percentage in Table 13, Quantified Responses to Teacher Storage by Teaching Level, elementary teachers chose score one (lowest satisfaction) more frequently than secondary teachers. The most frequent choice of secondary teachers was score seven (highest satisfaction). Elementary teacher responses tended to be either very positive or very negative. Secondary teacher responses ranged across the scale.

Table 13. Quantified Responses to Teacher Storage by Teaching Level

	NEGATIVE SATISFACTION				POSITIVE SATISFACTION			
	lowest 1	lower 2	low 3	average 4	high 5	higher 6	highest 7	TOTAL
ELEMENTARY								
Frequency	17	11	2	3	0	14	13	60
%	11.33	7.33	1.33	2.00	0.00	9.33	8.67	40.00
Row %	28.33	18.33	3.33	5.00	0.00	23.33	21.67	
Column %	58.62	55.00	14.29	33.33	0.00	40.00	35.14	
SECONDARY								
Frequency	12	9	12	6	6	21	24	90
%	8.00	6.00	8.00	4.00	4.00	14.00	16.00	60.00
Row %	13.33	10.00	13.33	6.67	6.67	23.33	26.67	
Column %	41.38	45.00	85.71	66.67	100.00	60.00	64.86	
TOTAL								
Frequency	29	20	14	9	6	35	37	150
%	19.33	13.33	9.33	6.00	4.00	23.33	24.67	100.00

Chi square probability = 0.025
Frequency missing = 2
$P<0.05$

While teachers with less than 15 years experience and those with 15 years or more experience both most frequently selected high satisfaction ranges for storage, the more experienced teachers showed the greatest degree of satisfaction more frequently. The same held true, also, with dissatisfaction. The more experienced group showed the highest degree of dissatisfaction.

The row percentage in Table 14, Quantified Responses to Teacher Storage by Years Experience, shows more teachers with over 15 years experience chose score seven (highest satisfaction) and score one (lowest satisfaction) when compared to teachers with 15 or less years experience. The most frequent scores for less experienced teachers were score six (higher

satisfaction) and score two (lower satisfaction). Less experienced teachers tended to have more responses in the middle ranges (three through five).

Table 14. Quantified Responses to Teacher Storage by Years Experience

	NEGATIVE SATISFACTION				POSITIVE SATISFACTION			
	lowest 1	lower 2	low 3	average 4	high 5	higher 6	highest 7	TOTAL
0-15 YEARS								
Frequency	9	14	7	5	5	19	9	68
%	6.00	9.33	4.67	3.33	3.33	12.67	6.00	45.33
Row %	13.24	20.59	10.29	7.35	7.35	27.94	13.24	
Column %	31.03	70.00	50.00	55.56	83.33	54.29	24.32	
ABOVE 15 YEARS								
Frequency	20	6	7	4	1	16	28	82
%	13.33	4.00	4.67	2.67	0.67	10.67	18.67	54.67
Row %	24.39	7.32	8.54	4.88	1.22	19.51	34.15	
Column %	68.97	30.00	50.00	44.44	16.67	45.71	75.68	
TOTAL								
Frequency	29	20	14	9	6	35	37	150
%	19.33	13.33	9.33	6.00	4.00	23.33	24.67	100.00

Chi square probability = 0.004
Frequency missing = 2
$P<0.05$

Ten teachers indicated they had no way to secure belongings. Two of the ten addressed this as an area of great concern in their facility. Variety and adequate size of storage were identified by ten and nine respondents respectively as being practically nonexistent.

Electrical Outlets

The most frequent score for Electrical Outlets was seven. Significance was found by gender (0.015). In responding to the item on electrical outlets, interestingly, female respon-

dents selected the greatest satisfaction score and the greatest dissatisfaction score equally in frequency with very similar choices for the other scores. Male respondents' choices were decisively in the highly satisfied ranges. As shown by row percentage in Table 15, Quantified Responses to Electrical Outlets by Gender, female teachers were evenly divided between scores one and seven as their number one frequency choice. The most frequent choice of male teachers was score six (higher satisfaction). Very few males indicated dissatisfaction choices.

Table 15. Quantified Responses to Electrical Outlets by Gender

	NEGATIVE SATISFACTION				POSITIVE SATISFACTION			
	lowest 1	lower 2	low 3	average 4	high 5	higher 6	highest 7	TOTAL
FEMALE								
Frequency	14	5	3	2	2	6	14	46
%	18.42	6.58	3.95	2.63	2.63	7.89	18.42	60.53
Row %	30.43	10.87	6.52	4.35	4.35	13.04	30.43	
Column %	87.50	100.00	60.00	33.33	50.00	33.33	63.64	
MALE								
Frequency	2	0	2	4	2	12	8	30
%	2.63	0.00	2.63	5.26	2.63	15.79	10.53	39.47
Row %	6.67	0.00	6.67	13.33	6.67	40.00	26.67	
Column %	12.50	0.00	40.00	66.67	50.00	66.67	36.36	
TOTAL								
Frequency	16	5	5	6	4	18	22	76
%	21.05	6.58	6.58	7.89	5.26	23.68	28.95	100.00

Chi square probability = 0.015
$P<0.05$

Three teachers specifically addressed the need for computer outlets; four reported plenty of outlets--many classrooms had been rewired just for computers. One respondent reported only one outlet which was in the back of the

room while another reported having two outside the class wall. Three teachers related they had only two outlets in the room, and one of the three stated that fuses were blown frequently. An art teacher reported that even with the use of multi-outlet extension cords more outlets were needed.

In-Building Communication

The most frequent score for In-Building Communication was seven (highest satisfaction). No significant differences were found.

Seven teachers reported no public address intercom system. Two reported the intercom as causing terrible interruptions and, in their words, as "being too efficient." Both of these teachers wished they did not have an intercom. Another teacher reported having a two-way system which was answered "poorly." A one-way system was reported as having poor audio and as being randomly used by the secretaries. One respondent reported having a two-way system, but the call button had been broken for five years. Another respondent reported the public address system had poor audio but was only used before school and at noon.

Summary

The most frequent score for Summary was six (higher satisfaction) with no significant differences found. This indicated that most of the respondents viewed the environmental conditions of their facility as positively impacting learning.

Ranking of Respondents' Environmental Aspects

Of the ten given environmental aspects, respondents were asked to rank the five most important in their facility in allowing them to function professionally. All ten aspects were recognized as important to some degree by the respondents.

As shown in Table 16, Classroom Furnishings, Classroom Equipment, Ambient Features, Space Utilization, and Location were found to be the most important. A first choice was valued as five, second as four, third as three, fourth as two and fifth as one. These were then totaled to derive a response value. No significant differences were found.

Table 16. Ranking of Most Important Environmental Aspects

	TOTAL NUMBER OF RESPONSES					
	First choice	Second choice	Third choice	Fourth choice	Fifth choice	
Value of importance:	5	4	3	2	1	RESPONSE VALUES
Classroom Furnishings	8	12	10	3	1	127
Classroom Equipment	9	6	14	3	4	121
Ambient Features	8	13	4	7	2	120
Space Utilization	10	3	4	7	5	93
Location	2	1	0	5	10	34

Noninstructional Features

Noninstructional features found outside of the instructional area impact the ability of teachers to function professionally. The identified outstanding teachers were asked to mark on a seven-point descriptive word pair scale that which was most characteristic of their present facility.

Telephones for Teacher Use

The most frequent score for Telephones for Teacher Use was one showing the lowest possible satisfaction. There was a significant difference (0.002) by gender. Male respondents, for the most part, were well satisfied with telephones for teacher use. Female respondents were overwhelmingly dissatisfied with the majority ranking this with the lowest possible score. Table 17, Quantified Responses to Telephones for Teacher Use by Gender, shows the comparison of female teacher to male teacher responses. The most frequent choice of female teachers was score one (lowest satisfaction). The most frequent choice of males was score six (higher satisfaction).

Two respondents recognized this area as being of grave concern. Seven teachers indicated they did not have enough phones; in two cases the one hall phone was used by over fifty teachers as well as students. Eight teachers were specifically concerned with privacy. The phones they could use were in hallways, lounges, or offices occupied by the principal, librarian, nurse or secretary. Three teachers commented that long distance calls could not be made, with one of the three explaining that some of the students lived in

long distance phone call areas. Two teachers indicated that due to the lack of privacy and the difficulty in accessing a phone to call parents, they did their calling from their home phones in the evening.

Table 17. Quantified Responses to Telephones for Teacher Use by Gender

	NEGATIVE SATISFACTION				POSITIVE SATISFACTION			
	lowest 1	lower 2	low 3	average 4	high 5	higher 6	highest 7	TOTAL
FEMALE								
Frequency	19	4	1	5	4	2	9	44
%	25.68	5.41	1.35	6.76	5.41	2.70	12.16	59.46
Row %	43.18	9.09	2.27	11.36	9.09	4.55	20.45	
Column %	90.48	44.44	25.00	83.33	44.44	18.18	64.29	
MALE								
Frequency	2	5	3	1	5	9	5	30
%	2.70	6.76	4.05	1.35	6.76	12.16	6.76	40.54
Row %	6.67	16.67	10.00	3.33	16.67	30.00	16.67	
Column %	9.52	55.56	75.00	16.67	55.56	81.82	35.71	
TOTAL								
Frequency	21	9	4	6	9	11	14	74
%	28.38	12.16	5.41	8.11	12.16	14.86	18.92	100.00

Chi square probability = 0.002
Frequency missing = 2
$P<0.05$

Conference Areas

Parent and Student Conference Areas

Parent and Student Conference Areas received most frequent scores of seven and one (highest and lowest satisfaction) with a significant difference by gender (0.000) and by teaching level (0.017).

Female teachers most frequently chose the lowest score showing great dissatisfaction with parent and student confer-

ence areas. A noticeable number of female teachers, however, did choose the highest satisfaction score. Male teachers showed high satisfaction in this area. The most frequently chosen score for female teachers as shown by the row percentage in Table 18, Parent and Student Conference Areas by Gender, was score one (lowest satisfaction). The most frequently chosen score for male teachers was score six (higher satisfaction), with most male teacher responses found in the high satisfaction ranges.

Table 18. Quantified Responses to Parent and Student Conference Areas by Gender

	NEGATIVE SATISFACTION				POSITIVE SATISFACTION			
	lowest 1	lower 2	low 3	average 4	high 5	higher 6	highest 7	TOTAL
FEMALE								
Frequency	21	1	1	6	2	1	13	45
%	28.00	1.33	1.33	8.00	2.67	1.33	17.33	60.00
Row %	46.67	2.22	2.22	13.33	4.44	2.22	28.89	
Column %	91.30	25.00	50.00	75.00	66.67	8.33	56.52	
MALE								
Frequency	2	3	1	2	1	11	10	30
%	2.67	4.00	1.33	2.67	1.33	14.67	13.33	40.00
Row %	6.67	10.00	3.33	6.67	3.33	36.67	33.33	
Column %	8.70	75.00	50.00	25.00	33.33	91.67	43.48	
TOTAL								
Frequency	23	4	2	8	3	12	23	75
%	30.67	5.33	2.67	10.67	4.00	16.00	30.67	100.00

Chi square probability = 0.000
Frequency missing = 1
$P<0.05$

Elementary teachers indicated overwhelming dissatisfaction with parent and student conference areas. Secondary teachers were highly satisfied with the parent and student conference areas. As shown by row percentage in Table 19,

Quantified Responses to Parent and Student Conference Areas by Teaching Level, the most frequent elementary teacher score was score one (lowest satisfaction). The most frequent secondary teacher score was score seven (highest satisfaction). The majority of elementary responses fell within the negative, low satisfaction ranges as compared to the secondary responses which tended to be in the positive, high satisfaction ranges.

Table 19. Quantified Responses to Parent and Student Conference Areas by Teaching Level

	NEGATIVE SATISFACTION				POSITIVE SATISFACTION			
	lowest 1	lower 2	low 3	average 4	high 5	higher 6	highest 7	TOTAL
ELEMENTARY								
Frequency	16	0	0	3	1	2	8	30
%	21.33	0.00	0.00	4.00	1.33	2.67	10.67	40.00
Row %	53.33	0.00	0.00	10.00	3.33	6.67	26.67	
Column %	69.57	0.00	0.00	37.50	33.33	16.67	34.78	
SECONDARY								
Frequency	7	4	2	5	2	10	15	45
%	9.33	5.33	2.67	6.67	2.67	13.33	20.00	60.00
Row %	15.56	8.89	4.44	11.11	4.44	22.22	33.33	
Column %	30.43	100.00	100.00	62.50	66.67	83.33	65.22	
TOTAL								
Frequency	23	4	2	8	3	12	23	75
%	30.67	5.33	2.67	10.67	4.00	16.00	30.67	100.00

Chi square probability = 0.017
Frequency missing = 1
$P<0.05$

Five teachers related they had conference rooms available. Three teachers indicated there were no private areas available for parent and student conferences. In one facility, the gym area was used for conferences.

Teacher to Teacher Conference Areas

The Teacher to Teacher Conference Areas received a most frequent score of one with significant difference by gender (0.001) and teaching level (0.020).

The vast majority of female teachers were not satisfied with teacher to teacher conference areas although a number did indicate highest or average satisfaction. Male teachers chose high satisfaction scores. As shown by row percentage in Table 20, Quantified Responses to Teacher to Teacher Conference Areas by Gender, score one (lowest satisfaction) was the most frequent score chosen by female teachers. The most frequent male teacher score was score seven (highest satisfaction).

Table 20. Quantified Responses to Teacher to Teacher Conference Areas by Gender

	NEGATIVE SATISFACTION				POSITIVE SATISFACTION			
	lowest 1	lower 2	low 3	average 4	high 5	higher 6	highest 7	TOTAL
FEMALE								
Frequency	22	2	1	7	3	1	10	46
%	28.95	2.63	1.32	9.21	3.95	1.32	13.16	60.53
Row %	47.83	4.35	2.17	15.22	6.52	2.17	21.74	
Column %	88.00	28.57	50.00	87.50	75.00	12.50	45.45	
MALE								
Frequency	3	5	1	1	1	7	12	30
%	3.95	6.58	1.32	1.32	1.32	9.21	15.79	39.47
Row %	10.00	16.67	3.33	3.33	3.33	23.33	40.00	
Column %	12.00	71.43	50.00	12.50	25.00	87.50	54.55	
TOTAL								
Frequency	25	7	2	8	4	8	22	76
%	32.89	9.21	2.63	10.53	5.26	10.53	28.95	100.00

Chi square probability = 0.001
P<0.05

Elementary teachers were greatly dissatisfied with teacher to teacher conference areas while secondary teachers for the most part showed high satisfaction. Elementary teachers tended to use either the lowest or highest satisfaction level. Secondary teachers were more evenly scattered in response choices. The row percentage of Table 21, Quantified Responses to Teacher to Teacher Conference Areas by Teaching Level, shows elementary teachers chose score one (lowest satisfaction) the most frequently. Secondary teachers chose score seven (highest satisfaction) frequently. Secondary teacher choices tended to be in the positive, satisfactory ranges.

Table 21. Quantified Responses to Teacher to Teacher Conference Areas by Teaching Level

	NEGATIVE SATISFACTION				POSITIVE SATISFACTION			
	lowest 1	lower 2	low 3	average 4	high 5	higher 6	highest 7	TOTAL
ELEMENTARY								
Frequency	17	1	0	3	1	1	7	30
%	22.37	1.32	0.00	3.95	1.32	1.32	9.21	39.47
Row %	56.67	3.33	0.00	10.00	3.33	3.33	23.33	
Column %	68.00	14.29	0.00	37.50	25.00	12.50	31.82	
SECONDARY								
Frequency	8	6	2	5	3	7	15	46
%	10.53	7.89	2.63	6.58	3.95	9.21	19.74	60.53
Row %	17.39	13.04	4.35	10.87	6.52	15.22	32.61	
Column %	32.00	85.71	100.00	62.50	75.00	87.50	68.18	
TOTAL								
Frequency	25	7	2	8	4	8	22	76
%	32.89	9.21	2.63	10.53	5.26	10.53	28.95	100.00

Chi square probability = 0.020
P<0.05

Two teachers commented that teacher to teacher conferences were held in the lounge while a third indicated a lounge was not available for that purpose. One teacher reported the conference room was being used as a lounge so the teachers never used it.

Teacher Restrooms

Teacher restrooms received a most frequent score of seven (highest satisfaction) with no significant differences being found.

No positive comments were provided for Teacher Restrooms. Three respondents stated they had no restrooms for teachers. One simply commented "Help!" In one facility there was one restroom for both female teachers and male teachers. Two respondents were concerned with the number of women (10 and 15) who had only one restroom which was located in the lounge and often used on five-minute break periods. A three-story facility had a teacher restroom only on the first floor. In one school occupying eight buildings, only three of the buildings had teacher restrooms. Another respondent stated that the facility had teacher restrooms but they should be marked "adult only"--implying that students also used them.

Teacher Parking

The most frequent score for Teacher Parking was seven (highest satisfaction) with no significant differences found.

Five respondents described teacher parking as excellent, assigned and convenient. Three teachers had teacher parking available but parked in student parking areas for convenience.

Another respondent was pleased with unlimited parking space near the school. Three teachers commented on the lack of adequate parking with one stating the need to park in a vacant lot across the street from the school.

Teacher Professional Library

The Teacher Professional Library received the score of one most frequently (lowest satisfaction), with no significant differences being found.

Most of the comments regarding the Teacher Professional Library were negative. Six respondents indicated none existed; another called it a "sad, sad story." One teacher suggested that the professional library was an "afterthought." Another respondent called the professional library weak but commented that it was growing.

Equipment for Teacher Use

The respondents were asked to indicate equipment for teacher use which was provided outside of their instructional area. This included copying, scoring, and laminating machines as well as computers and typewriters. Teachers were also given the opportunity to provide information on other equipment. Supplying teachers with the proper tools with which to prepare for instruction has a direct bearing on teachers functioning professionally.

Equipment for Teacher Use received a score of seven most frequently, with significant differences found by gender (0.016) and teaching level (0.002).

Female teacher rankings of teacher equipment fluctuated greatly going from the highest to lowest score, back to a high and down to a lower score, and then back to average. Male teacher's choices ranged from the highest satisfaction score to average. The row percentage of Table 22, Quantified Responses to Teacher Equipment by Gender, shows both female and male teachers choosing score seven (highest satisfaction) as the most frequent score.

Table 22. Quantified Responses to Teacher Equipment by Gender

	NEGATIVE SATISFACTION				POSITIVE SATISFACTION			
	lowest 1	lower 2	low 3	average 4	high 5	higher 6	highest 7	TOTAL
FEMALE								
Frequency	20	14	7	11	9	15	39	115
%	10.53	7.37	3.68	5.79	4.74	7.89	20.53	60.53
Row %	17.39	12.17	6.09	9.57	7.83	13.04	33.91	
Column %	71.43	82.35	58.33	57.89	36.00	46.88	68.42	
MALE								
Frequency	8	3	5	8	16	17	18	75
%	4.21	1.58	2.63	4.21	8.42	8.95	9.47	39.47
Row %	10.67	4.00	6.67	10.67	21.33	22.67	24.00	
Column %	28.57	17.65	41.67	42.11	64.00	53.13	31.58	
TOTAL								
Frequency	28	17	12	19	25	32	57	190
%	14.74	8.95	6.32	10.00	13.16	16.84	30.00	100.00

Chi square probability = 0.019
$P<0.05$

Elementary teachers selected the highest satisfaction score (seven) the most frequently, with their second choice being the lowest score (one). Secondary teachers ranked teacher equipment from the highest to average scores.

As shown by row percentage in Table 23, Quantified Responses to Teacher Equipment by Teaching Level, elementary teachers chose score seven (highest satisfaction) the most frequently. Secondary teachers chose score six (high satisfaction) the most frequently.

Table 23. Quantified Responses to Teacher Equipment by Teaching Level

	NEGATIVE SATISFACTION				POSITIVE SATISFACTION			
	lowest 1	lower 2	low 3	average 4	high 5	higher 6	highest 7	TOTAL
ELEMENTARY								
Frequency	12	6	6	4	6	7	34	75
%	6.32	3.16	3.16	2.11	3.16	3.68	17.89	39.47
Row %	16.00	8.00	8.00	5.33	8.00	9.33	45.33	
Column %	42.86	35.29	50.00	21.05	24.00	21.88	59.65	
SECONDARY								
Frequency	16	11	6	15	19	25	23	115
%	8.42	5.79	3.16	7.89	10.00	13.16	12.11	60.53
Row %	13.91	9.57	5.22	13.04	16.52	21.74	20.00	
Column %	57.14	64.71	50.00	78.95	76.00	78.13	40.35	
TOTAL								
Frequency	28	17	12	19	25	32	57	190
%	14.74	8.95	6.32	10.00	13.16	16.84	30.00	100.00

Chi square probability = 0.003
$P<0.05$

One respondent related that the copy machine was leased, overworked, constantly broken, and often unrepaired for three weeks. Another related that the equipment was old and frustrating, but could not be replaced due to a lack of funds. Two teachers spoke of the constant need for repair due to the number of people who used too few copy machines. One of the same two teachers spoke of long waiting lines of teachers to

use the equipment. One teacher related being limited in the number of copies which could be made yearly.

Special Areas

Special areas such as planning, lounge, and dining areas are directly related professionally not only to the instructional preparation by teachers but also to the self-esteem morale building of the teachers themselves. Therefore, teachers were asked to indicate which special areas for teacher use were available in their facility and to describe them using the seven point word pair descriptor scale. The areas were: teacher planning (work or office) area, teacher lounge area, teacher dining area (away from student dining), combination of the three aforementioned, and other. Five teachers indicated they had no special teacher areas. Sixteen teachers indicated having separate planning areas, 19 indicated having separate lounges, and six indicated having separate dining areas. Seven teachers indicated having a combination lounge/dining area, three a combination planning/lounge area, and three indicated a combination of planning/lounge/dining area. Two teachers indicated having combination areas, but did not describe what they were.

Teacher Planning Area

The most frequent score for Teacher Planning Area was one (lowest satisfaction). A significant difference (0.000) was found by years experience.

Teachers with less than 15 years experience chose most frequently scores showing low satisfaction with planning areas. Teachers with 15 or more years experience selected most frequently in the positive, satisfactory ranges. As shown by row percentage in Table 24, Quantified Responses to Teacher Planning Area by Years Experience, teachers with 15 or less years experience most frequently chose score two (lower satisfaction). Teachers with more than 15 years experience evenly chose score six (high satisfaction) most frequently.

Table 24. Quantified Responses to Teacher Planning Area by Years Experience

	NEGATIVE SATISFACTION				POSITIVE SATISFACTION			
	lowest 1	lower 2	low 3	average 4	high 5	higher 6	highest 7	TOTAL
0-15 YEARS								
Frequency	5	20	8	9	3	2	5	52
%	2.96	11.83	4.73	5.33	1.78	1.18	2.96	30.77
Row %	9.62	38.46	15.38	17.31	5.77	3.85	9.62	
Column %	18.52	76.92	42.11	34.62	14.29	8.33	19.23	
ABOVE 15 YEARS								
Frequency	22	6	11	17	18	22	21	117
%	13.02	3.55	6.51	10.06	10.65	13.02	12.43	69.23
Row %	18.80	5.13	9.40	14.53	15.38	18.80	17.95	
Column %	81.48	23.08	57.89	65.38	85.71	91.67	80.77	
TOTAL								
Frequency	27	26	19	26	21	24	26	169
%	15.98	15.38	11.24	15.38	12.43	14.20	15.38	100.00

Chi square probability = 0.000
P<0.05

Teacher Lounge Area

The most frequent score for the Teacher Lounge Area was two (low satisfaction). Significant differences were found in gender, teaching level, and years experience.

Female teachers basically viewed the teacher lounge area as average by choosing score four the most frequently. Male teachers, however, were not as consistent with an almost equal frequency choice above and below the average. As shown by row percentage in Table 25, Quantified Responses to Teacher Lounge Area by Gender, female teachers chose score four (average satisfaction) the most frequently. Male teachers were evenly divided between scores two (low satisfaction) and five (high satisfaction) as the most frequent response.

Table 25. Quantified Responses to Teacher Lounge Area by Gender

	NEGATIVE SATISFACTION				POSITIVE SATISFACTION			
	lowest 1	lower 2	low 3	average 4	high 5	higher 6	highest 7	TOTAL
FEMALE								
Frequency	10	15	8	20	14	14	12	93
%	5.81	8.72	4.65	11.63	8.14	8.14	6.98	54.07
Row %	10.75	16.13	8.60	21.51	15.05	15.05	12.90	
Column %	47.62	42.86	53.33	86.96	41.18	48.28	80.00	
MALE								
Frequency	11	20	7	3	20	15	3	79
%	6.40	11.63	4.07	1.74	11.63	8.72	1.74	45.93
Row %	13.92	25.32	8.86	3.80	25.32	18.99	3.80	
Column %	52.38	57.14	46.67	13.04	58.82	51.72	20.00	
TOTAL								
Frequency	21	35	15	23	34	29	15	172
%	12.21	20.35	8.72	13.37	19.77	16.86	8.72	100.00

Chi square probability = 0.004
P<0.05

Elementary teachers place the teacher lounge in scores of average to highly satisfactory. Secondary teachers showed low satisfaction most frequently followed by a little above average satisfaction choices.

The row percentage score of Table 26, Quantified Responses to Teacher Lounge Area by Teaching Level, shows elementary teachers chose score five (high satisfaction) most frequently. Score two (low satisfaction) was the most frequent score for secondary teachers.

Table 26. Quantified Responses to Teacher Lounge Area by Teaching Level

	NEGATIVE SATISFACTION				POSITIVE SATISFACTION			
	lowest 1	lower 2	low 3	average 4	high 5	higher 6	highest 7	TOTAL
ELEMENTARY								
Frequency	6	5	5	10	11	8	9	54
%	3.49	2.91	2.91	5.81	6.40	4.65	5.23	31.40
Row %	11.11	9.26	9.26	18.52	20.37	14.81	16.67	
Column %	28.57	14.29	33.33	43.48	32.35	27.59	60.00	
SECONDARY								
Frequency	15	30	10	13	23	21	6	118
%	8.72	17.44	5.81	7.56	13.37	12.21	3.49	68.60
Row %	12.71	25.42	8.47	11.02	19.49	17.80	5.08	
Column %	71.43	85.71	66.67	56.52	67.65	72.41	40.00	
TOTAL								
Frequency	21	35	15	23	34	29	15	172
%	12.21	20.35	8.72	13.37	19.77	16.86	8.72	100.00

Chi square probability = 0.055
$P < 0.05$

Teachers with less than 15 years experience showed dissatisfaction with the teacher lounge area. Teachers with more experience made their choices in the average to high satisfaction range.

The row percentage in Table 27, Quantified Responses to Teacher Lounge Area by Years Experience, shows score two (low satisfaction) as the most frequent score of teachers with 15 or less years of experience. Those teachers with more than 15 years experience chose score six (high satisfaction) more frequently.

Table 27. Quantified Responses to Teacher Lounge Area by Years Experience

	NEGATIVE SATISFACTION				POSITIVE SATISFACTION			
	lowest 1	lower 2	low 3	average 4	high 5	higher 6	highest 7	TOTAL
0-15 YEARS								
Frequency	12	18	6	11	12	5	3	67
%	6.98	10.47	3.49	6.40	6.98	2.91	1.74	38.95
Row %	17.91	26.87	8.96	16.42	17.91	7.46	4.48	
Column %	57.14	51.43	40.00	47.83	35.29	17.24	20.00	
ABOVE 0-15 YEARS								
Frequency	9	17	9	12	22	24	12	105
%	5.23	9.88	5.23	6.98	12.79	13.95	6.98	61.05
Row %	8.57	16.19	8.57	11.43	20.95	22.86	11.43	
Column %	42.86	48.57	60.00	52.17	64.71	82.76	80.00	
TOTAL								
Frequency	21	35	15	23	34	29	15	172
%	12.21	20.35	8.72	13.37	19.77	16.86	8.72	100.00

Chi square probability = 0.028
P<0.05

Teacher Dining Area

The most frequent score for teacher dining area was two (lower satisfaction) with significant differences found by gender and teaching level.

Both male and female teachers most frequently chose dissatisfaction scores for the teacher dining area. The difference was the degree to which the dining area was

unsatisfactory. Female teachers found the greatest dissatisfaction. As shown by the row percentage in Table 28, Quantified Responses to Teacher Dining Area by Gender, the most frequent female teacher choice was score one (lowest satisfaction). The most frequent male teacher choice was score two (lower satisfaction).

Table 28. Quantified Responses to Teacher Dining Area by Gender

	NEGATIVE SATISFACTION				POSITIVE SATISFACTION			
	lowest 1	lower 2	low 3	average 4	high 5	higher 6	highest 7	TOTAL
FEMALE								
Frequency	12	6	1	3	0	2	2	26
%	18.75	9.38	1.56	4.69	0.00	3.13	3.13	40.63
Row %	46.15	23.08	3.85	11.54	0.00	7.69	7.69	
Column %	80.00	26.09	16.67	60.00	0.00	20.00	66.67	
MALE								
Frequency	3	17	5	2	2	8	1	38
%	4.69	26.56	7.81	3.13	3.13	12.50	1.56	59.38
Row %	7.89	44.74	13.16	5.26	5.26	21.05	2.63	
Column %	20.00	73.91	83.33	40.00	100.00	80.00	33.33	
TOTAL								
Frequency	15	23	6	5	2	10	3	64
%	23.44	35.94	9.38	7.81	3.13	15.63	4.69	100.00

Chi square probability = 0.007
Frequency missing = 1
$P<0.05$

The most frequent elementary choice for dining area was the score showing greatest dissatisfaction. This was followed by average, a low score, and highest satisfaction. This fluctuation was not found in secondary responses. Secondary choices overwhelmingly showed dissatisfaction with the low score followed by the very lowest score.

As shown by row percentage in Table 29, Quantified Responses to Teacher Dining Area by Teaching Level, the most frequent elementary teacher choice was score one (lowest satisfaction). Secondary teachers chose score two (low satisfaction) most frequently.

Table 29. Quantified Responses to Teacher Dining Area by Teaching Level

	NEGATIVE SATISFACTION				POSITIVE SATISFACTION			
	lowest 1	lower 2	low 3	average 4	high 5	higher 6	highest 7	TOTAL
ELEMENTARY								
Frequency	4	2	1	3	0	1	2	13
%	6.25	3.13	1.56	4.69	0.00	1.56	3.13	20.31
Row %	30.77	15.38	7.69	23.08	0.00	7.69	15.38	
Column %	26.67	8.70	16.67	60.00	0.00	10.00	66.67	
SECONDARY								
Frequency	11	21	5	2	2	9	1	51
%	17.19	32.81	7.81	3.13	3.13	14.06	1.56	79.69
Row %	21.57	41.18	9.80	3.92	3.92	17.65	1.96	
Column %	73.33	91.30	83.33	40.00	100.00	90.00	33.33	
TOTAL								
Frequency	15	23	6	5	2	10	3	64
%	23.44	35.94	9.38	7.81	3.13	15.63	4.69	100.00

Chi square probability = 0.054
Frequency missing = 1
$P<0.05$

Combination Area

The most frequent score for combination areas was seven (highest satisfaction). A significant difference was not found.

Other Areas

Two teachers indicated having other areas. One secondary female teacher described a conference area which, when not

being used by the school board or for other meetings, was used as a teacher planning and lounge area. If the room was in use, teachers used their classrooms; if the classroom was also in use (by another teacher), the teachers used a study hall area in the library.

The second teacher was also a secondary female teacher who indicated having another area--a teacher center by subject areas--in addition to a separate Teacher Planning Area and a combination Lounge and Dining Area. A most frequent score is not given for this area as there were so few responses.

Questionnaire Section II: Perceptions

The first section of the questionnaire asked that respondents specifically address their own facility. In Section II, however, the respondents were asked to record their opinions on the potential effect of different educational facilities on the professional performance of a teacher.

Respondents were first asked to indicate the degree to which any educational facility might potentially effect the professional performance of a teacher. (Appendix A, Questions 88-105). This was done by ranking each Instructional Area and Noninstructional Features aspect on a scale from one to five with score one being no effect to score five being a very high effect. No significant differences were found in tabulation of the responses. Table 30, Respondents' Perceptions of Potential Effect of Environmental Aspects on Teacher Professionalism, shows the most frequent score for each environmental aspect.

Table 30. Respondents' Perceptions of Potential Effect of Environmental Aspects on Teacher Professionalism

Environmental Aspects	Most Frequent Scores				
	None 1	Very low 2	Moderately low 3	Moderately high 4	Very high 5
Instructional Area:					
Location				X	
Space Utilization				X	
Ambient Features				X	
Windows				X	
Floor Coverings			X		
Classroom Furnishings				X	
Classroom Equipment					X
Teacher Storage				X	
Electrical Outlets				X	
In-building Communications				X	
Noninstructional Features:					
Telephones for Teacher Use				X	
Conference Areas					X
Teacher Restrooms				X	
Teacher Parking				X	
Teacher Workroom				X	
Teacher Lounge				X	
Teacher Dining Area				X	
Teacher Professional Library					X

Respondents were next asked to provide input on features they would or would not include in designing an educational

facility. The feedback from the teachers is organized by three criteria: Features in Respondents' Current Facilities Which Would not be Included, Existing Features in Respondents' Current Facilities Which Would be Included, and Nonexisting Features in Respondents' Current Facility Which Would be Included. Only the four most frequently identified features are reported for each.

Features in Respondents' Current Facilities Which Would not be Included

Ten teachers commented specifically on the design of the campus. The concerns were campuses too spread out, campuses in a maze, poor traffic patterns, noisy locations, and three-story buildings. Along with campus design, eight teachers addressed small, odd-shaped rooms.

Ten teachers were concerned with thermal conditions. They indicated having no air conditioning, lack of control of thermal units, and poor window placement for ventilation.

Inadequate equipment was identified by nine teachers.

Poor acoustics was the concern of eight teachers. Noise resulted from no soundproofing; location too close to the cafeteria, air-conditioning units, or student hall lockers; and steam heat.

Existing Features in Respondents' Current Facilities Which Would be Included

Fifteen teachers were pleased and would include their teacher workroom and teacher equipment in the workroom.

Eleven teachers commented on the appropriateness of the floor coverings in their classrooms and would include carpeting in both classrooms and hallways.

The teacher lounge would be included by ten teachers. Comments included central location, by the teacher workroom, with a dining area, and separate smoking and nonsmoking lounges.

Nine teachers were pleased and would include their computer lab. These were described as being well-equipped and often located near the media center.

Nonexisting Features in Respondents' Current Facility Which Would be Included

Twenty-three teachers chose a teacher workroom as a feature they would like to have. Thirteen of these respondents would like the workroom accessible at all times--even after school hours. Six wanted up-to-date, state-of-the-art equipment. Three suggested several teacher workrooms located over the campus with one respondent suggesting a location near the supply room.

Thermal conditions were addressed by 14 respondents. Eight wanted air-conditioning, five wanted teacher control of the thermal environment, and one wanted better ventilation.

Thirteen respondents desired telephones for teacher use which could be used privately, used to call outside the campus or district perimeters, and used to call long distance.

Ten teachers desired conference areas for both student and parent and teacher to teacher conferences.

CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

The purpose of this study was to determine the ways teachers perceive that school facilities enhance their ability to function as professionals. The data gathering instrument designed to fulfill this purpose measured how satisfied the identified teachers were with their present facility and their perception of the extent to which their facility allowed them to function professionally. The instrument also identified the physical environmental aspects the teachers considered the most important in any educational facility, and, as such, the areas requiring the careful attention of all involved in the facility planning of schools.

Research Question One

Research Question One: To what degree are teachers who are recognized as outstanding satisfied with the school facilities in which they teach?

The respondents indicated they were well satisfied with all aspects of the instructional areas of their building facilities except for space utilization.

Space utilization received the lowest possible rating. As reflected by the research done by Ryan and Cooper (1972), Davis (1973), Knezevich (1975), and Castaldi (1987), teachers desired spaces which were expandable and/or allowed them flexibility to adapt the room to meet various needs. The teachers were frustrated by spaces which were too small, too crowded, or of unusual design. Due to the lack of space,

teachers were limited in creativity and in using current methods of teaching which call for student activity. This finding confirmed research conducted by Davis (1973). The facility actually dictated to the teachers and the students rather than adapting to their needs. The finding also verified research on crowding which showed resulting negative effects on learning, student behavior, and teacher/student relationships (Trump & Boynham, 1968; Krantz & Risley, 1972; Toepfer, et al., 1972; Wohlwill & van Vliet, 1985).

Of all the instructional area aspects with which the teachers had to contend, it is interesting that there was only one--space utilization--with which they were unhappy. Based upon Becker's research (1981), if these respondents who are identified as outstanding view space utilization in such a dismal light, even greater must be the frustration of the teachers with lower or reduced competencies.

As a whole, teachers indicated high satisfaction with noninstructional areas such as teacher restrooms, teacher parking, equipment for teacher use, and combination special areas. Low satisfaction was shown in teacher lounge and dining areas with the very lowest satisfaction shown for telephones for teacher use, teacher to teacher conference areas, teacher professional library, and teacher planning areas. Teachers were divided between the very lowest and very highest scores for parent and student conference areas.

Research supports the importance of teacher satisfaction in noninstructional areas. Handler (1960) and Becker (1981)

strongly advocated environments conducive to teacher initiative, commitment, and motivation. Each called for facilities which provided such an atmosphere. Boles (1965) stated that not providing comfortable space to teachers in which to work, plan, or just relax was a costly error. Research shows noninstructional areas of vital importance, not only in building morale but also in building self-esteem (Haywood, 1959; Trump, 1968; Knezevich, 1975; Brubaker, 1987; Jolivet, 1988; Hathaway, 1988; The Institute for Educational Leadership, 1988).

As respondents addressed areas within their current facility which they would change or not include, if given the opportunity, four areas were repeatedly identified. One area was campus design, including not only the classroom, but also the entire facility. Teachers were frustrated by sprawling, ill-designed campuses as well as small, crowded classrooms. This was reflected by the concerns of space utilization.

A second area of concern was that of thermal conditions. As reported by Knirk (1979), Castaldi (1982), and Glass (1986), teachers are dissatisfied by the lack or the lack of control of proper heating/cooling/ventilation systems. As verified in research, the teaching/learning process is greatly affected by thermal conditions. Too hot or too cold conditions hinder the effectiveness of both teacher and student.

A third area of concern was the lack or poor quality of equipment. Time and again, in responding to this research, teachers identified the need for quality equipment in the

right quantity. Poor quality, the need to share, or the complete lack of equipment dictated what and how the teachers chose to teach.

Research by McQuade (1958), Handler (1960), Davis (1973), Glass (1985), and Gabler (1987) stressed the importance of good acoustics. This was a fourth area of concern identified by the respondents. Noise, whether from air conditioners, heaters, lockers or other classrooms, hinders by distracting from the learning process. Certainly a teacher who must limit class discussion or activities due to noise or for fear of disturbing others is being inhibited.

Teachers also identified environmental aspects of their present facility which they would include in designing a new facility. Two special areas were identified: teacher workrooms with state-of-the-art equipment in sufficient quantity and teacher lounges located convenient to areas such as workrooms and media centers. Additionally, teachers would include computer labs--well equipped and well designed. These were not surprising responses based on previously gleaned information. The surprising response--for the teachers had given this sparse comment--was the desire for carpeting. However, when looking at the versatility offered by carpet (such as children sitting on the floor to read or play games) plus the acoustical qualities, carpeting in certain areas is seen as a quite appropriate educational need.

Teacher responses to what they do not have and would include in designing a new facility reflects previous findings.

Once again, state-of-the-art teacher workrooms were desired. Thermal environments controllable by the teacher and suitable to the geographical area were again identified. The lack of conference areas came to the forefront once more as teachers would seek to include these. Closely connected to the idea of conferencing was a fourth inclusion--private and adequate telephones for both professional and personal use.

Research Question Two

Research Question Two: To what degree do teachers who are recognized as outstanding perceive that the environmental aspects of their school facilities allow them to function as professionals?

In summarizing the effect of the instructional areas of their present facility on their professional functioning, the respondents indicated high satisfaction.

Respondents were also asked to rank the environmental aspects within their current instructional area which most influenced their professional performance. The most important environmental aspect within the instructional area was classroom furnishings followed fairly closely by classroom equipment and ambient features. The fourth choice, with a significant lower rating, was space utilization. Of interest is that space utilization was the only identified aspect within instructional area to receive a completely unsatisfactory score and, even more significantly, the lowest possible score. Yet when asked to rank the importance of space utilization, it became of less significance. This would indicate again that given the proper furnishings (desks, chairs, tables,

bookshelves), the proper equipment (chalkboards, computers, A-V equipment, bulletin boards), plus the desired ambient features (heating, ventilation, lighting, acoustics, color) the creative, competent, professional teacher can overcome even space utilization deficiencies.

Research Question Three

Research Question Three: Which environmental aspects of the school facilities do teachers who are recognized as outstanding perceive as the most important in allowing them to function as professionals?

The respondents were asked to rate by degree, from none to very high, the environmental aspects of any educational facility which would be the most important in allowing teachers to function professionally.

In identifying the importance of the instructional area aspects the teachers gave each a rating of moderately high with the exceptions of floor coverings and classroom equipment. Floor coverings received a moderately low rating while classroom equipment was rated very high.

In rating noninstructional features, all aspects other than conference areas and professional libraries received a rating of moderately high. The conference areas and professional libraries were both rated as very high.

Significantly, none of the aspects were rated as unimportant or low in importance indicating that all are of importance to teachers. Conference areas and professional libraries may have received more importance simply due to their absence in current facilities.

Research Question Four

Research Question Four: Which environmental aspects require the careful attention of architects, facility planners, and administrators in order to aid teachers to function professionally?

The findings of this research showed all the identified aspects to be of importance to the professional functioning of teachers and therefore, to warrant the careful attention of all who are involved in educational facility planning. However, the findings also indicated many of the aspects require closer attention.

Correlation of teacher responses indicated one area of concern to be facility design as related not only to space utilization within the classroom but also the building design. Teachers desired expandable, flexible classrooms in facilities allowing for ease in movement from one area to another.

High on teacher priorities was the need for a thermal environment appropriate to the area and controlled by individual teachers.

Teachers also desired better acoustics which, in many instances, could be provided by the careful planning of the location of air conditioning or heating equipment and noise producing areas such as the cafeteria and band hall. Carpet was desired for the acoustical needs and comfort.

Certain aspects require attention at different teaching levels. Elementary teachers indicated the need for more and better classroom storage areas as well as conferencing areas to use with other teachers or with parents and students.

Secondary teachers were pleased with storage and conference areas but not with teacher lounges. Both levels expressed a concern with teacher dining areas and with telephones for teacher use.

Additionally, while not always possible or even practical to address, the teacher needs identified by gender should be considered in planning facilities.

Conclusions

Certain conclusions may be made as the result of this study.

- The population was basically satisfied with the impact of their present facility on the professional functioning of teachers.
- Within instructional areas, the respondents were frustrated by space utilization, not only in the classroom but also in the entire facility.
- Special areas and features closely linked to teacher self-esteem and morale were not satisfactory.
- The respondents desired areas designed for teacher planning, conferencing, and relaxation which allowed them not only to function professionally but also recognized their value as professionals.
- Teacher control of the thermal conditions in the classroom was preferred by the respondents.
- Poor acoustics hampered effective teaching.

- Both quality and quantity of equipment was often lacking.
- While all the teachers had similar needs and concerns, differences could be identified by gender, experience, and teaching level.

Recommendations for Future Research

This study suggests further areas of investigation. First, in the study of the population of this research, further research might include teachers from schools identified as effective schools as opposed to the identification of a particular effective teacher.

A population more closely quantified for comparison might be helpful. Because of the pre-identified population and non-respondent loss of information, this research relied too heavily on secondary (22) versus elementary (16) and female teachers (23) versus male teachers (16). Quantification would allow comparison/relationship studies of secondary male/female teachers to elementary male/female teachers. Another expansion of the study, when quantified, might be to compare teachers from self-contained classrooms to those from open space classrooms.

By broadening the study to include a greater population, a study could also be done reflecting teacher perceptions in various regions of the nation.

To gain another viewpoint, the perspective of administrators could be included and compared with those of the teacher.

The study could be developed even further to include not only the physical but also psychological aspects.

Future research might include a replication of this study with another identified group of State Teachers of the Year.

Some thought should be given to the inclusion of more information on the facility itself, such as age, building material, location, and number of floor levels.

Finally, the findings of the proposed research should be shared with those involved in educational facility planning in order not only to meet the professional needs of the teacher but to also ensure that wise educational facility investments are being made.

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APPENDIX A

ENVIRONMENTAL ASPECTS ENHANCING TEACHER PROFESSIONALISM

ENVIRONMENTAL ASPECTS ENHANCING TEACHER PROFESSIONALISM

1. Check the appropriate space: _____Male _____Female

2. Teaching level:

	School Grade Levels	Your specialization and/or grade level:
Elementary	_____to_____	_____
Junior High	_____to_____	
Middle School	_____to_____	
Senior High	_____to_____	

3. Years experience: _____

4. In how many different school buildings have you taught? _____

DIRECTIONS: If you teach in more than one instructional area, please respond considering the teaching space in which you spend the majority of time. Should you spend an equal amount of time in several classrooms, please answer using the classroom to which you feel most strongly. Please indicate the area you have chosen to describe:

5A.

_____self-contained classroom _____open space classroom

_____laboratory _____individual learning laboratory

_____vocational shop _____gymnasium

_____other; specify_____

5B. How many hours do you spend each day in the instructional area which you have chosen to rate? _____

DIRECTIONS: Using the descriptive scales provided, please rate your environment. Check toward the direction which to you seems most characteristic of your environment. Space is provided for comments.

Example: If you consider the concept as presented in each of the respective items **very closely related** to one end of the scale, check as follows:

cheerful _X_: ___: ___: ___: ___: ___: ___: gloomy

OR

cheerful ___: ___: ___: ___: ___: ___: _X_: gloomy

INSTRUCTIONAL AREA

LOCATION

6.	inconvenient	___: ___: ___: ___: ___: ___: ___:	convenient
7.	noisy	___: ___: ___: ___: ___: ___: ___:	quiet
8.	attractive	___: ___: ___: ___: ___: ___: ___:	unattractive

Comments: _____

_____

SPACE UTILIZATION

9.	adequate size	___: ___: ___: ___: ___: ___: ___:	inadequate size
10.	well designed	___: ___: ___: ___: ___: ___: ___:	poorly designed
11.	efficient	___: ___: ___: ___: ___: ___: ___:	inefficient
12.	flexible	___: ___: ___: ___: ___: ___: ___:	inflexible
13.	expandable walls	___: ___: ___: ___: ___: ___: ___:	non-expandable walls
14.	teacher discretion	___: ___: ___: ___: ___: ___: ___:	no teacher discretion
15.	easy after hour access	___: ___: ___: ___: ___: ___: ___:	no after hour access

Comments: _____

_____

AMBIENT FEATURES (heating, ventilation, lighting, acoustics, color)

16.	comfortable temperature	___: ___: ___: ___: ___: ___: ___:	uncomfortable temp.
17.	teacher-control temp.	___: ___: ___: ___: ___: ___: ___:	no teacher control
18.	adequate ventilation	___: ___: ___: ___: ___: ___: ___:	inadequate ventilation
19.	inadequate lighting	___: ___: ___: ___: ___: ___: ___:	adequate lighting
20.	inviting colors	___: ___: ___: ___: ___: ___: ___:	repelling colors
21.	cluttered	___: ___: ___: ___: ___: ___: ___:	uncluttered
22.	cheerful	___: ___: ___: ___: ___: ___: ___:	gloomy
23.	poor acoustics	___: ___: ___: ___: ___: ___: ___:	good acoustics

Comments: _____

_____

3

WINDOWS (Omit this section if your classroom is windowless.)

24.	adequate size	___: ___: ___: ___: ___: ___: ___:	inadequate size
25.	adequate number	___: ___: ___: ___: ___: ___: ___:	inadequate number
26.	poorly located	___: ___: ___: ___: ___: ___: ___:	well located
27.	optional covering	___: ___: ___: ___: ___: ___: ___:	no covering option
28.	distracting	___: ___: ___: ___: ___: ___: ___:	not distracting

Comments: _____

_____

FLOOR COVERING (Please check __carpet; __hard surface; __combination)

29.	appropriate for area	___: ___: ___: ___: ___: ___: ___:	inappropriate for area
30.	unsuitable colors	___: ___: ___: ___: ___: ___: ___:	suitable colors
31.	attractive	___: ___: ___: ___: ___: ___: ___:	unattractive
32.	aids acoustics	___: ___: ___: ___: ___: ___: ___:	hinders acoustics

Comments: _____

_____

CLASSROOM FURNISHINGS (desks, chairs, tables, bookshelves)

33.	appropriate	___: ___: ___: ___: ___: ___: ___:	inappropriate
34.	unsuitable colors	___: ___: ___: ___: ___: ___: ___:	suitable colors
35.	unattractive	___: ___: ___: ___: ___: ___: ___:	attractive
36.	drab	___: ___: ___: ___: ___: ___: ___:	colorful
37.	old	___: ___: ___: ___: ___: ___: ___:	new
38.	comfortable	___: ___: ___: ___: ___: ___: ___:	uncomfortable
39.	movable	___: ___: ___: ___: ___: ___: ___:	immovable
40.	flexible	___: ___: ___: ___: ___: ___: ___:	inflexible

Comments: _____

_____

CLASSROOM EQUIPMENT (chalkboards, computers, A-V equipment, bulletin boards)

41.	well located	___: ___: ___: ___: ___: ___: ___:	poorly located
42.	new	___: ___: ___: ___: ___: ___: ___:	old
43.	adequate (number)	___: ___: ___: ___: ___: ___: ___:	inadequate (number)
44.	adequate (quality:size)	___: ___: ___: ___: ___: ___: ___:	inadequate

Comments: _____

_____

TEACHER STORAGE

45.	secured personal stor.	___: ___: ___: ___: ___: ___: ___:	nonsecured pers. stor.
46.	accessible	___: ___: ___: ___: ___: ___: ___:	inaccessible
47.	variety	___: ___: ___: ___: ___: ___: ___:	no variety
48.	adequate size	___: ___: ___: ___: ___: ___: ___:	inadequate size

Comments: _____

_____

ELECTRICAL OUTLETS

49.	poorly located	___: ___: ___: ___: ___: ___: ___:	well located
50.	adequate number	___: ___: ___: ___: ___: ___: ___:	inadequate number

Comments: _____

_____

IN-BUILDING COMMUNICATIONS (PA system, intercom, telephone)

51.	two way system	___: ___: ___: ___: ___: ___: ___:	one way system
52.	inefficient	___: ___: ___: ___: ___: ___: ___:	efficient

Comments: _____

_____

SUMMARY

53. impact of total environmental conditions in classroom on learning:

positive	___: ___: ___: ___: ___: ___: ___:	negative

54. Please rank the environmental aspects of your instructional area in the order of their importance to your professional performance as a teacher. Rank only the five most important to you, using 1 as the most important and 5 as the least important. Leave the remaining aspects blank.

_____ location

_____ space utilization

_____ ambient features (heating, ventilation, lighting, acoustics, color)

_____ windows

_____ floor covering

_____ classroom furnishings (desks, chairs, tables, bookshelves)

_____ classroom equipment (chalkboards, computers, etc.)

_____ teacher storage

_____ electrical outlets

_____ in-building communications (PA system, intercom, telephone)

NONINSTRUCTIONAL FEATURES

TELEPHONES FOR TEACHER USE

55.	no privacy	___: ___: ___: ___: ___: ___: ___:	privacy
56.	easily accessible	___: ___: ___: ___: ___: ___: ___:	non accessible

Comments: _____

_____

CONFERENCE AREAS

(parents and students)

57.	public	___: ___: ___: ___: ___: ___: ___:	private
58.	in classroom	___: ___: ___: ___: ___: ___: ___:	conference room

(teacher to teacher)

59.	public	___: ___: ___: ___: ___: ___: ___:	private
60.	in classroom	___: ___: ___: ___: ___: ___: ___:	conference room

Comments: _____

_____

TEACHER RESTROOMS

61.	convenient	___: ___: ___: ___: ___: ___: ___:	inconvenient
62.	inadequate size	___: ___: ___: ___: ___: ___: ___:	adequate size
63.	adequate number	___: ___: ___: ___: ___: ___: ___:	inadequate number

Comments: _____

_____

TEACHER PARKING

64.	restricted	___: ___: ___: ___: ___: ___: ___:	non-restricted
65.	poorly located	___: ___: ___: ___: ___: ___: ___:	well located
66.	adequate	___: ___: ___: ___: ___: ___: ___:	inadequate

Comments: _____

_____

TEACHER PROFESSIONAL LIBRARY

67.	extensive selection	___: ___: ___: ___: ___: ___: ___:	limited selection
68.	well maintained	___: ___: ___: ___: ___: ___: ___:	poorly maintained
69.	inconvenient location	___: ___: ___: ___: ___: ___: ___:	convenient location

Comments: _____

_____

EQUIPMENT FOR TEACHER USE Please check ___copying machines ___computers

___scoring machines ___typewriters

___laminating machines

___others; specify_____

70.	poorly located	___: ___: ___: ___: ___: ___: ___:	well located
71.	teacher operated	___: ___: ___: ___: ___: ___: ___:	non teacher operated
72.	easy after hour access	___: ___: ___: ___: ___: ___: ___:	no after hour access
73.	inadequate number	___: ___: ___: ___: ___: ___: ___:	adequate number
74.	poorly maintained	___: ___: ___: ___: ___: ___: ___:	well maintained

Comments: _____

_____

SPECIAL AREAS (Noninstructional areas)

A. - Special areas for teacher use include the teacher planning (work or office) space; the teacher lounge; and teacher dining areas. In many facilities, these areas are combined. Please indicate which of these special areas are present in your facility.

____Teacher Planning (Work or Office) Area

____Teacher Lounge Area

____Teacher Dining Area (away from student dining)

____Combination of the Above

____None of the Above

____Other; specify_____

B. Indicating the area in the space provided, please describe the special areas in your facility. Forms are provided for the description of two areas. Should you have more than two, choose the two about which you feel the strongest.

_____AREA

75.	convenient	___: ___: ___: ___: ___: ___: ___:	inconvenient
76.	public	___: ___: ___: ___: ___: ___: ___:	private
77.	quiet	___: ___: ___: ___: ___: ___: ___:	noisy
78.	bad acoustics	___: ___: ___: ___: ___: ___: ___:	good acoustics
79.	inadequate ventilation	___: ___: ___: ___: ___: ___: ___:	adequate ventilation
80.	comfortable temperature	___: ___: ___: ___: ___: ___: ___:	uncomfortable temp.
81.	inadequate lighting	___: ___: ___: ___: ___: ___: ___:	adequate lighting
82.	suitable colors	___: ___: ___: ___: ___: ___: ___:	unsuitable colors
83.	repelling	___: ___: ___: ___: ___: ___: ___:	inviting
84.	comfortable furniture	___: ___: ___: ___: ___: ___: ___:	uncomfortable furn.
85.	inadequate size	___: ___: ___: ___: ___: ___: ___:	adequate size
86.	adequate storage	___: ___: ___: ___: ___: ___: ___:	inadequate storage
87.	well equipped	___: ___: ___: ___: ___: ___: ___:	poorly equipped

Comments: _____

_____

OMIT IF NOT APPLICABLE: GO ON TO SECTION II

Second Area:

_____ AREA (Please indicate which area you are describing.)

75.	convenient	___: ___: ___: ___: ___: ___: ___:	inconvenient
76.	public	___: ___: ___: ___: ___: ___: ___:	private
77.	quiet	___: ___: ___: ___: ___: ___: ___:	noisy
78.	bad acoustics	___: ___: ___: ___: ___: ___: ___:	good acoustics
79.	inadequate ventilation	___: ___: ___: ___: ___: ___: ___:	adequate ventilation
80.	comfortable temperature	___: ___: ___: ___: ___: ___: ___:	uncomfortable temp.
81.	inadequate lighting	___: ___: ___: ___: ___: ___: ___:	adequate lighting
82.	suitable colors	___: ___: ___: ___: ___: ___: ___:	unsuitable colors
83.	repelling	___: ___: ___: ___: ___: ___: ___:	inviting
84.	comfortable furniture	___: ___: ___: ___: ___: ___: ___:	uncomfortable furn.
85.	inadequate size	___: ___: ___: ___: ___: ___: ___:	adequate size
86.	adequate storage	___: ___: ___: ___: ___: ___: ___:	inadequate storage
87.	well equipped	___: ___: ___: ___: ___: ___: ___:	poorly equipped

Comments: _____

_____

SECTION II

The information you have provided thus far has related to environmental aspects of your own facility. At this time, please circle your answer based upon the potential effect of any educational facility on the professional performance of a teacher.

A. To what degree do you perceive the following to provide teachers with the opportunity to function as professionals?

	None	Very low	Moderately low	Moderately high	Very high
Instructional Area:					
88. location	1	2	3	4	5
89. space utilization	1	2	3	4	5
90. ambient features	1	2	3	4	5
91. windows	1	2	3	4	5
92. floor coverings	1	2	3	4	5
93. classroom furnishings	1	2	3	4	5
94. classroom equipment	1	2	3	4	5
95. teacher storage	1	2	3	4	5
96. electrical outlets	1	2	3	4	5
97. in building communications	1	2	3	4	5
Noninstructional Features:					
98. telephones for teachers	1	2	3	4	5
99. conference areas	1	2	3	4	5
100. restrooms for teachers	1	2	3	4	5
101. parking for teachers	1	2	3	4	5
102. teacher workroom	1	2	3	4	5
103. teacher lounge	1	2	3	4	5
104. teacher dining area	1	2	3	4	5
105. professional library	1	2	3	4	5

B. Given the opportunity to design an educational facility, please list the 5 features found in your present facility which you would not include as they hinder in your functioning in a professional manner.

1. _____

2. _____

3. _____

4. _____

5. _____

C. Given the opportunity to design an educational facility, please list the 5 features found in your present facility which you would include to aid you in functioning in a professional manner.

1. _____

2. _____

3. _____

4. _____

5. _____

D. Given the opportunity to design an educational facility, please list 5 features not found in your present facility which you would include to aid you in functioning in a professional manner.

1. _____

2. _____

3. _____

4. _____

5. _____

THANK YOU FOR YOUR ASSISTANCE!!!!!!!!

APPENDIX B

LETTER TO PILOT POPULATION

TEXAS A&M UNIVERSITY
COLLEGE OF EDUCATION
COLLEGE STATION, TEXAS 77843-4226

Department of
EDUCATIONAL ADMINISTRATION

Room 222
M. T. HARRINGTON EDUCATION CENTER
Phone (409) 845-2716

April 25, 1988

Mrs. Joan Doe
Somewhere ISD
Somewhere, Texas

Dear Mrs. Doe:

Congratulations on being recognized as an outstanding teacher in the state of Texas.

As one who is recognized as outstanding in the field, you are asked to assist in piloting a research instrument which I am using for a study on educational facilities. This research for my doctoral dissertation is also part of a larger study being conducted by The Interface Project--The Interface between School Facility and Student Learning. The project, directed by Harold L. Hawkins, Ed. D., Texas A&M University, is being conducted by architects, school administrators, professors, and educational facility planners from across the nation and Canada. As the project associate, I am interested in your perception as a professional teacher.

Please take time to have a coke on me as you use your expertise in completing and commenting on the attached questionnaire. I would welcome comments from you on the format, clarity, or any other aspect you might identify which would help me perfect the instrument. Your comments may be written directly on the instrument. Please return the questionnaire in the envelope provided by May 20.

I realize this is a very busy time of the year for you, and I am very appreciative of your help in my research.

Sincerely,

Betty L. Overbaugh
Doctoral Student
Project Associate, The Interface Project

APPENDIX C

INITIAL LETTER TO POPULATION

TEXAS A&M UNIVERSITY
COLLEGE OF EDUCATION
COLLEGE STATION, TEXAS 77843-4226

Department of
EDUCATIONAL ADMINISTRATION

Room 222
M. T. HARRINGTON EDUCATION CENTER
Phone (409) 845-2716

April 25, 1988

Mr. John Doe
State Teacher of the Year
Somewhere ISD
Somewhere, Somestate

Dear Mr. Doe:

Congratulations on being selected as The State Teacher of the Year for 1988.

As the recipient of an award recognizing your expertise in the teaching profession, I am asking you to assist in research which I am doing on educational facilities. This research for my doctoral dissertation is also part of a larger study being conducted by The Interface Project--The Interface between School Facility and Student Learning. The project, directed by Harold L. Hawkins, Ed. D., Texas A&M University, is being conducted by architects, school administrators, professors, and educational facility planners from across the nation and Canada. As the project associate,.I am interested in your perception as a professional teacher.

The data collection will take place in June and should require no more than ten minutes of your time. Although some personal information is necessary, your response will be kept confidential. Only the statistical data will be revealed to others. Please return the enclosed form to me by May 16 along with the address and phone number where you may be reached in June if you are willing to participate.

With the recognized growing needs of new, or at least remodeled, educational facilities in our nation, this is your chance to make a difference in the design of those facilities.

Sincerely,

Betty L. Overbaugh
Doctoral Student
Project Associate, The Interface Project

SCHOOL FACILITIES: ENVIRONMENTAL CONDITIONS ENHANCING THE OPPORTUNITY FOR THE TEACHER TO FUNCTION AS A PROFESSIONAL

Mr. John Doe
State Teacher of the Year
Somewhere ISD
Somewhere, Somestate

I am willing to participate in the research project. My address and phone number for June are:

Address: Phone:

_____ _____

_____

_____

I am unwilling to participate in the research project. _____

APPENDIX D

FOLLOW-UP COVER LETTER TO RESPONDENTS

TEXAS A&M UNIVERSITY
COLLEGE OF EDUCATION
COLLEGE STATION, TEXAS 77843-4226

Department of
EDUCATIONAL ADMINISTRATION

Room 222
M. T. HARRINGTON EDUCATION CENTER
Phone (409) 845-2716

June 24, 1988

Mr. John Doe
State Teacher of the Year
Somewhere ISD
Somewhere, Somestate

Dear Mr. Doe:

Your consent to participate in the research I am conducting on teacher professionalism is most welcome. The instrument enclosed has been carefully developed and piloted, and the information you provide will be used to compile the desired data. Please return the questionnaire in the self addressed envelope by July 15. Your professional input is highly valued.

Please accept my best wishes for a pleasant summer, warm in the knowledge that in aiding educational research, you have once again shown yourself to be a professional.

Sincerely,

Betty L. Overbaugh
Doctoral Student
Project Associate, The Interface Project

APPENDIX E

FOLLOW-UP COVER LETTER

TO NONRESPONDENTS

TEXAS A&M UNIVERSITY
COLLEGE OF EDUCATION
COLLEGE STATION, TEXAS 77843-4226

Department of
EDUCATIONAL ADMINISTRATION

Room 222
M. T. HARRINGTON EDUCATION CENTER
(409) 845-2716

June 24, 1988

Mr. John Doe
State Teacher of the Year
Somewhere ISD
Somewhere, Somestate

Dear Mr. Doe:

I recently sent you a request to participate in research I am conducting on school facilities. Since I have not had a response from you, I am fearful the correspondence may have been lost in the mail. Therefore, I am writing to request your participation in the project and, at the same time, enclosing the questionnaire for data collection.

As the recipient of an award recognizing your expertise in the teaching profession, I am asking you to assist in research which I am doing on educational facilities. This research for my doctoral dissertation is also part of a larger study being conducted by The Interface Project--The Interface between School Facility and Student Learning. The project, directed by Harold L. Hawkins, Ed. D., Texas A&M University, is being conducted by architects, school administrators, professors, and educational facility planners from across the nation and Canada. As the project associate, I am interested in your perception as a professional teacher.

The instrument enclosed has been carefully developed and piloted, and the information you provide will be used to compile the desired data. Please return the questionnaire in the self addressed envelope by July 15. Your professional input is highly valued. Although some personal information is necessary, your response will be kept confidential. Only the statistical data will be revealed to others.

Please accept my best wishes for a pleasant summer, warm in the knowledge that in aiding educational research, you have once again shown yourself to be a professional.

Sincerely,

Betty L. Overbaugh
Doctoral Student
Project Associate, The Interface Project

VITA

Betty Lightfoot Overbaugh

3709 Bayshore Drive
Bacliff, Texas 77518

Education

Master of Education
Educational Administration
University of Houston
1983

Bachelor of Science
Elementary Education
University of Texas
1959

Professional Experience

1988-	Dickinson Independent School District Dickinson, Texas
1984-1987	Cypress Fairbanks Independent School District Houston, Texas
1971-1984	Spring Branch Independent School District Houston, Texas
1962-1965	Houston Independent School District Houston, Texas
1959-1960	Austin Independent School District Austin, Texas

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